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VOL. X.] JANUARY, 1902. [No. 109.

THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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See page 357.

THE

ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

VOLUME X

1902

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MARSHALL BROTHERS, KESWICK HOUSE, PATERNOSTER ROW, E.C.

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Mo. Bot. Garden
1903

"In these fayre offspringes of Nature there is a charm removed from their beautie, the which appealeth to the harte, and many find in them the emblems of some excellent qualitie or tender feelinge."

THE ORCHID REVIEW.

VOL. X.] *JANUARY*, 1902. [No. 109.

DIES ORCHIDIANI.

MY comments on the Report of the Commission appointed to examine the system of growing Orchids in leaf-mould had to be deferred on account of want of space (see page 324 of the previous volume), and the succeeding number seems to have been handed over to the Index makers, who not only monopolized the customary eight pages, but required two additional ones to complete their work, and of course something had to be squeezed out. But the space could not have been put to a better purpose, and it is difficult to see how one could find the different items of information without such a useful guide. I think someone has said that a work of reference without an index is an abomination. Now to the Report of that Commission.

It is most interesting to have such full details of the new treatment, but the question as to whether we may adopt it with confidence is hardly settled. The Commission speaks of marvellous results; nevertheless it advises caution, and suggests that amateurs should experiment on a small scale before adopting the treatment generally. The members would like to renew the visit when the plants are in full growth, so as to be able to form a better judgment. I would suggest that they should visit M. Delanghe's establishment, where the treatment has been practised longer—indeed it was the marvellous results obtained by the latter that induced Messrs. Duval to adopt the system. And we read that Messrs. Duval had obtained from M. Delanghe, for the special edification of the Commission, a clump of Cattleya Mossiæ which was potted in this compost five years ago, and had not since been touched—until "we broke the pot, and were astonished to find that the compost was quite fresh, and in sufficiently good condition to be used to-day." And if the examination of a single plant was so astonishing, what might not the examination of a whole collection have been? The plant was presumably healthy, and five years should suffice to show whether the treatment was beneficial or the reverse. It is certainly a little disconcerting to be told that "it is not necessary to water the plants"—as if they were succulents indeed!—but if "a light syringing of each pot" maintains

the necessary degree of humidity, who shall gainsay it? It matters not how the water is given, so long as it is sufficient and applied in the right place. I hope the Commission will follow the matter up, for it can hardly be left where it is now.

"An old grower" is in no such hesitating frame of mind. He says culture in leaf-mould is no new idea, but was tried long ago and proved a failure. There is nothing equal to good fibrous peat and sphagnum moss, with plenty of drainage to take off superfluous water. "It is'nt natural, this new-fangled treatment." This is the substance of his remarks, and we may give the question a moment's consideration. It seems to be a case of leaf-mould *versus* peat and sphagnum, and I wonder which is the more "natural." Most growers swear by sphagnum for surfacing, and often mix it with the compost, but most of the plants never saw a piece of sphagnum in a wild state. It is a bog moss, and is not found on the trees where the Orchids grow. Other mosses and lichens may be there in plenty —I have often seen them attached to the roots of imported plants—but who advocates using them as potting materials? And it is a question whether many of the plants grow in fibrous peat, using the term in its true sense. Many of them grow in accumulations of decaying vegetation—leaves, twigs, &c.—otherwise humus, and the new compost is nothing else, so that I fail to see what there is "unnatural" about it. Sphagnum is not used because it is natural for the plants to grow in it, but because it is a splendid moisture-retaining material, and most Orchids are essentially moisture-loving plants, and so they thrive in sphagnum. The evidence seems to be that some of them thrive in leaf-mould, too, so let us give the new treatment a fair trial.

A few weeks ago I read an article on "Empiricism v. Natural Conditions" (*Trinidad Bulletin*, 1901, p. 310), which is interesting and instructive in this connection. After a preliminary discussion, the author remarks that the essence of empiricism seems to be an idea that no knowledge of the conditions that exist naturally in the habitat of a plant is of the same value, from a cultivator's point of view, as that obtained by actually attempting to grow the plant under the various conditions existing in modern horticultural structures; and he then proceeds:—"It is quite true that plants often appear to exist under quite different conditions to those generally known, or conceived of, in their natural habitat; but an examination in full, and an accurate knowledge of each of these conditions, generally proves that the essential points required by the plant are really there, or they will not thrive.

"A writer once illustrated his argument by relating that many an Orchid, quite at home on the branch of a tree in its native home, will not thrive in cultivation unless placed in peat and moss and in a basket or pan. Why it was so he did not state, but merely gave the empirical, 'it won't do.' Why does he not tell us the reason? If he had thought the matter out he would have found that the arid atmosphere of his glass-house was such that it was impossible for the roots to exist, if exposed, and unless covered with the peat and moss, which affords them the best imitation possible of the condition of the air in their natural habitat. An essential condition, therefore, unobserved by the operator, was present in both places. . . .

"The pretty Lælia monophylla found in Jamaica has, it may be said, a climate of its own, for it is only found in situations identical as regards elevation, temperature, and moisture, and with the greatest similarity between the humidity of the places. This plant is often described as succeeding well in the Odontoglossum house, but that is exactly the temperature and condition which prevails in its natural habitat. The little Epidendrum serrulatum grows in coffee trees at 5,000 feet in Jamaica, and is seldom found below that elevation, while in other islands, possessing a greater humidity, it is found at sea level—difference of temperature 17 per cent. to 25 per cent. Fahr.—difference in humidity *nil*. The inference is clear, but nevertheless it would not do to overlook the fact that with the absence of sunlight experienced in temperate climates plants require to have different treatment; but this is only an artificial condition, and does not in any way affect the main argument. . . .

"Take Broughtonia sanguinea, again, which grows and thrives well at sea level, on bare trunks well exposed, in Jamaica. In Trinidad this plant utterly refuses to thrive unless kept in a position the driest attainable, and even it grows small by degrees and beautifully less, although the temperature and position are again almost the same, but humidity differing."

The inference which the writer draws is that humidity seems to be more important than temperature, and that soil is not so important as sometimes supposed; and he sums up the argument by saying:—"A knowledge of the outside influences would give the cultivator a much clearer hint, and put him in a more direct road, than the innumerable trials he will otherwise have to make where empirical methods alone are employed." Could we have a more rational argument in favour of rational treatment?

ARGUS.

ORCHIDS AT THE PRIORY, USK.

THE fine old Priory at Usk is snugly situated within its pretty grounds, and its position is such that it commands a splendid view for miles of the beautiful scenery of Monmouthshire. But the object of our visit was the Orchids, to which we quickly turned. To our intense pleasure we found a small but exceptionally well-cultivated collection, and could not but congratulate Mr. R. W. Rickards on his most successful methods.

A grand batch of Cattleya labiata was in full bloom, making a noble display. The plants are shown in the same house as grown, which serves as admirably for the former as it undoubtedly does for the latter. It is somewhat of a corridor-shaped structure, the dimensions of which are 30 feet long by 7 feet wide, and 6 feet high at the eaves, the high sides being of glass for the greater part of their depth. Such a house, as may be imagined, forms an ideal one, getting an abundance of light and perfect air circulation. The Cattleyas, Oncidiums, and Cypripediums grown in this department are really remarkable for their vigorous growth and firmness of texture. The spikes and flowers, as might be expected from such perfectly-matured pseudobulbs, are of the highest standard, both in numbers and in quality. Some beautiful varieties of Cattleya labiata were noted, as also C. Harrisoniana and C. Loddigesii, Lælia autumnalis atrorubens, Oncidium crispum, O. tigrinum, and O. × Mantinii, Cypripedium × Arthurianum, C. × Leeanum superbum, C. × œnanthum superbum, C. Spicerianum, and C. insigne in great variety.

Mr. Rickards is not a believer in large pots. For instance, many of the Cattleyas were noticed to have long passed the pot limits, and the roots were far more numerous outside than inside. These outside roots had not only claimed their own pot, but had interlaced themselves to the inverted pot—on which the plants were raised to suitable heights—so completely and securely that the task of freeing them from the same, if ever that process be deemed desirable, will be a matter of some difficulty. Nor has Mr. Rickards yet become a convert to the desirability of leaf-soil for his Orchids to root in. Certain it is that this compost, whatever its virtues, has nothing whatever to do with the success attained here. For when roaming about, as these roots do, they seem to inhale from the pure fresh atmosphere every essential necessary for the building up of large, healthy leaves and pseudobulbs, the new ones, if anything, being larger than the old.

Another department, a lean-to with north aspect, contains a capitally grown collection of cool Orchids. Here again the cultivation is equally good. The success is not due to the compost in which the plants are potted, but to the atmosphere upon which they seem to thrive. Here are plants with enormous healthy pseudobulbs, leaves, and spikes, in comparatively

very tiny pots, scarcely large enough to hold them. What little compost they contain is simply peat and moss. It is not leaf soil that is responsible for from two to five spikes from one pseudobulb of Odontoglossum crispum, which was noted in several instances; spikes were pushing from the apex as well as from the base on either side. Nor is it from the great amount of water administered, for great care in watering is observed, and at the date of our visit (November 4th) every plant was fairly dry. Fresh air, the one most essential thing, is not denied them, but is copiously admitted, and entirely through the bottom ventilators, which are very ample. Some of these Odontoglossum crispum spikes were splendidly branched, reminding one more of O. Pescatorei. Suspended from the roof were grand examples of O. Rossii, some bearing seed pods, which have in no way affected the size or flowering of this year's growth. Many plants of Sophronitis grandiflora in four inch pans have over 20 flower buds.

The use of hot water pipes in the Cool House is limited to taking the chill off the coldest air, and fog—the terror of growers in or near smoky districts—is here welcomed as the best aid to sturdy growth.

Mr. Rickards' methods, and indeed the general appearance of his plants, seem to approach more nearly that of our Continental neighbours than of the majority of English cultivators, and when we find Odontoglossums thriving in districts differing so widely in their climatic conditions there can no longer be any reason to believe that there is any inherent difficulty in their cultivation, if cultural methods are intelligently adapted to local conditions, to which end the more liberal interchange of experiences so largely aided by the horticultural press cannot fail to be of inestimable service.

It should be added that Mr. Rickards is an amateur in the truest sense, as he attends to the Orchids himself, the gardener only attending to the fires, and damping down or other routine work in Mr. Rickards absence.

H. A. B.

PHAIUS FRAGRANS.—A figure and note of a new Phaius bearing the above name is given by M. Grignan in *Le Jardin* for December 5th (p. 359, fig. 162). It is said to have been discovered in Madagascar by M. Warpur, and to have the flowers smaller and more numerous than in P. Humblotii, and almost of the same colour. They are also said to be agreeably fragrant. No description is given, nor is it stated in what collection the plant flowered —a particularly unsatisfactory method of publication. The segments are shown as widely spreading, as in P. Humblotii, and the lip three-lobed, with some small spots on the front lobe, and some larger ones on the side lobes.

R. A. R.

NOTICE OF BOOK.

The Woodlands Orchids, described and illustrated, with stories of Orchid-collecting. By Frederick Boyle. Coloured plates by J. L. Macfarlane, F.R.H.S. London, Macmillan & Co., pp. 274, with 16 coloured plates.

A book about Orchids by Mr. Boyle is sure to be interesting, whether it deals with some celebrated collection or with the stories that are connected with the introduction of the plants it contains, and in the volume now before us the two are combined. It is not easy to say which occupies the more prominent position, but we may accept the title of the book as sufficiently descriptive of its contents.

The Woodlands Orchids, it is hardly necessary to explain, are located at Streatham, and the author commences with an account of "how the collection was formed." It appears that after fifteen years of very hard work Mr. Measures' health broke down, and the doctor, after various futile attempts to induce his patient to take a long rest, advised him to "take a house in the suburbs, with a large garden; cultivate some special variety of plant; and study it." But the special variety to be selected presented a difficulty, until a mere chance put the patient on the right track. He attended a local sale, and presently some pots of Cypripedium barbatum were put up in bud and flower. They seemed curious and pretty, and he bought them. Three days after he saw a plant of Dendrobium thyrsiflorum in flower, and carried it home in a whirl of astonishment and delight. And now having seen the collection fairly launched, we pass on, briefly noting that it now occupies thirty-one houses, and is under the charge of Mr. J. Coles, with thirteen assistants regularly employed.

We pass on to the Cattleya House—or houses, for there are seven compartments, having an aggregate length of 187 feet. Here we are told that the collection of "Lælia elegans" is the finest in existence, comprising about 1,200 plants, and, after a general discussion of its history and assumed origin, a list of sixty-one varieties, with short descriptions. In perusing it we are impressed with the truth of the author's remark that "elegans is merely a title of convenience, with no scientific value." He observes that Mr. Rolfe has satisfied himself that by the alliance of Lælia purpurata with Cattleya Leopoldi the dark forms were produced, and by alliance with C. intermedia, the white. But no attempt is made to separate them—in fact the arrangement is neither alphabetical nor systematic, but one intended "to display by contrast the striking diversities which an Orchid may assume." This possibly explains why twenty-one other "varieties" are sandwiched between Schilleriana and S. splendens, but why one of these should be a hybrid between Cattleya Leopoldi and C. bicolor we cannot imagine. We have also a "Macfarlanei", and "Macfarlanei II,"

which are even further apart. Fortunately there is an index, in which all but three are included under "elegans," and the others have only strayed away.

The next chapter is a "Legend of Roezl"; after which we have the Cattleya House again, followed by stories of C. Bowringiana and C. Mossiæ. A house of Cypripedium insigne is then considered, and we find descriptions of a score of the more distinct varieties, including "R. H. Measures," whose size, we are told, is "astonishing"—the only clue we can give to the dimensions is that Harefield Hall var. is "smaller." Before passing on to the Phalænopsis House the author has a story of Cattleya Skinneri alba to relate, and afterwards of Vanda Sanderiana and Phalænopsis Sanderiana, after which we come to "Hybrid Cattleyas and Lælias," with several pages of descriptions, and a list of unflowered crosses in the collection. We cannot enumerate all the headings, suffice it to say that we have accounts of Lælia purpurata, the Calanthe House, Cattleya labiata House, Cypripediums, the Cool House, Masdevallias, Oncidiums, &c., interspersed with amusing stories and legends of various popular species which have a "history." These we shall not scrutinize too closely. They are intended to "amuse the general reader," and they will serve their purpose. One, however, which occurs under the heading of Cattleya labiata, we may mention in passing. The story of this plant has been told several times, and once more we read that those in search of it "explored every district which Swainson could possibly have visited, but of Cattleya labiata they found no sign," and again, "Certainly Swainson did not find his plants in the neighbourhood where they exist at this time." Had Mr. Boyle referred to the ORCHID REVIEW, volume viii., pages 362 to 365, he would have written the story very differently. But then he remarks that "not everyone files the ORCHID REVIEW." And note the result!

The coloured plates are sixteen in number, and we need only remark that they are in Mr. Macfarlane's well-known style. The frontispiece is *Zygocolax* × woodlandense, and wishing to know its history we turn to the Index, but fail to find it. On page 131, however, we find the remark:—"Very notable is the *Zygocolax* hybrid, *Leopardinus* (*Zygopetalum maxillare* × *Colax jugosus*), of which we give an illustration," while in the List of Illustrations we find it given as "*Zygocolax*, Woodlands variety," and thus we at length discover that the plant is *Zygocolax* × leopardinus, whose history, by the way, can be traced back to 1886. In the case of Cypripedium × Dr. Ryan we are even less fortunate. There is a fine coloured plate opposite page 219, and we look for its history. The Index fails us, and we search the fourteen pages devoted to the genus in vain. Again, take Cypripedium Boissierianum var. Bungerothii. We refer to the Index, and are told to "see reticulatum," which we do, and are sent to page 202. We go there

and find our coloured plate. And thus we complete the circle, but where is the history? Perhaps the author anticipates some such query when he observes that "many experts will wish that I had described some which are passed over and omitted some described." We might do so, but we hardly know under which head to include the last two examples. "Described" they are not, but one can hardly call them "passed over." But our space is exhausted. Mr. Boyle has certainly produced an interesting book from which Orchid growers, no less than the general reader, will derive pleasure and amusement.

ANŒCTOCHILI.

THESE charming little plants have the reputation of being difficult to keep in health for long together. Mr. James O'Brien has recently been discussing the subject (*Gard. Chron.*, 1901, xxx., p. 410), and remarks as follows:—"These plants I, like others, found to be very difficult to keep alive for any great length of time. The plants would grow well for a time, continually extending their creeping stems; then suddenly they went off. Ultimately, I made it a rule to take off every point as soon as a root was made at the base of the leaves. This was placed in a small Orchid pan, in loam fibre and sphagnum moss, and suspended like any other Orchid in a moist tank-house. I do not remember that one of these died so long as this practice was continued, and the old stumps gave a good supply of fresh growths to treat in the same manner. This method meets the difficulties of our being unable to give these plants the same conditions that they get at home, and serves to perpetuate the plant in the same manner as propagation by cutting or dividing may perpetuate an annual without sowing every year."

This brought a very interesting reply from Mr. J. K. Budde, Curator of the Utrecht Botanic Garden, as follows (p. 463):—"If Mr. James O'Brien wishes to see a fine collection of Anœctochili, let him come to the Botanic Garden of Utrecht, where they have been grown for the last ten years with great success. Nothing else is used as potting materials than peat and sphagnum moss, with a little sand. The principal point is: give them a place on the north side of a small house, and they will grow like weeds."

We should like to know the names of the species alluded to. Our experience is that some kinds are much more easily grown than others, probably because of differences in their requirements. One has to remember that the plants called Anœctochili in gardens belong to several different genera, and do not all grow under the the climatic conditions, which perhaps explains some of the difficulties experienced by those who attempt to grow them under identical conditions.

ODONTOGLOSSUM PRÆSTANS.

We are now able to give a figure of the very rare and distinct Odontoglossum præstans, from a plant in the collection of W. Thompson, Esq., Walton Grange, Stone, the photograph having been taken and sent by his gardener, Mr. Stevens. The species is a native of Peru, and was originally discovered at the sources of the Maranon by Warscewicz, who sent home dried specimens, which were described by Reichenbach in 1854 (*Bonplandia*, ii., p. 99). It is uncertain who first introduced it to cultivation, as Reichenbach, who wrote a note about it in 1875, on the occasion of its flowering,

Fig. 1. Odontoglossum præstans.

with the Rev. J. B. Norman, Whitchurch Rectory, Edgware, merely says:—"It was flowered very long since at Tooting with Messrs. Rollisson, who sent it to Consul Schiller." He also remarks that flowers were sent by Messrs. Hugh Low & Co., which had been gathered in Peru, he believed, by Mr. Smith, and that "Wagner gathered it but once at Ocana," but the latter is probably a mistake, some closely allied species having been confused with it. It was re-introduced from Peru by Messrs. Linden, with whom it flowered in 1892, when it was figured in the *Lindenia* (vol. vii.,

t. 322). Mr. Thompson's plants are out of this importation. The species is allied to O. gloriosum, but is markedly different in its long, acuminate, somewhat undulate segments, and other structural details, and in colour. The ground colour is very light yellow or greenish yellow, and the spots cinnamon brown, with a darker brown blotch in front of the very pale disc, these colours affording a very pleasing contrast. Mr. Stevens states that the plants grow and flower very freely, and they have been in the collection nearly ten years.

GALLS ON ORCHIDS.

ORCHIDS are not particularly subject to the attacks of gall-producing insects, and it may be interesting to note that MM. Darboux and Houard, in a work entitled *Catalogue systématique des Zoocécidies de l'Europe et du Bassin Mediterranéen*, include the genera Cattleya, Dendrobium, Disa, and Odontoglossum as subject to such attacks. It is curious to note that not a single indigenous Orchid is mentioned, and one rather wonders why cultivated exotics should be included in a work bearing such a title. This, however, is a detail. Under Cattleya we find the too well known Isosoma Orchidearum (the Cattleya fly, a member of the Tenthredinideæ) as having been observed on Cattleya amethystoglossa, C. Bowringiana, C. Gaskelliana, C. labiata, C. Mossiæ, C. Trianæ, and C. sp. A rounded gall of the size of a pea, occurring on the aërial roots of this genus, is also mentioned as the work of one of the Cecidomyideæ. The Cattleya fly seems able to accommodate itself to circumstances in our collections, for Dendrobium densiflorum, D. formosum, D. Phalænopsis, and D. undulatum are all mentioned as subject to its attacks. Another gall, of the size and form of a grain of wheat, has been observed on an unidentified species of Dendrobium; the gall has an ovoid cavity, containing an orange-yellow larva, belonging to one of the Cecidomyideæ. Disa grandiflora is mentioned as having been attacked by a disease analagous to the "maladie annulaire" of the hyacinth, possibly the work of the same insect, Tylenchus devastatrix, a nematoid worm. Lastly the leaves of a species of Odontoglossum are said to have been disfigured by small black and rounded protuberances, the work of an Anguillulide. It is hardly necessary to add that Orchidists will include all the above under the genus "pests" should they appear in their collections, and treat them accordingly. It is useful to know the form in which these maladies may appear, and the knowledge may sometimes enable the mischief to be detected before it has assumed undue proportions.

EXPERIMENTS IN PLANT HYBRIDISATION.

In the year 1865, a paper on the above subject, by the late Gregor Méndel, appeared in the *Abhandlungen des naturforschenden Vereines in Brünn* (vol. iv.), which has been almost lost sight of, but a translation by Mr. William Bateson, M.A., F.R.S., is given in the last number of the *Journal of the Royal Horticultural Society* (xxv., pp. 1-32), which should serve to rescue it from that oblivion into which it had fallen. Although the paper does not deal in any way with Orchids, the general principles involved are as applicable to them as to any other plants, and as we know by correspondence that the subject is already engaging the attention of Orchidists, it seems desirable to devote a little space to it. The numerous hybrid Orchids now in existence should throw further light on the question.

In an introductory note, Mr. Bateson remarks that "the conclusion which stands out as the chief result of Mendel's admirable experiments is of course the proof that in respect of certain pairs of differentiating characters the germ cells of a hybrid, or cross-bred, are pure, being carriers and transmitters of either the one character or the other, not both." This, so far as we can gather by a perusal of the paper, embodies what is subsequently termed "Mendel's law," and the translator adds—"that he succeeded in demonstrating this law for the simple cases with which he worked it is scarcely possible to doubt." He further remarks:—"In as far as Mendel's law applies, therefore, the conclusion is forced upon us that a living organism is a complex of characters, of which some, at least, are capable of being replaced by others. We thus reach the conception of unit-characters, which may be re-arranged in the formation of the reproductive cells. It is hardly too much to say that the experiments which led to this advance in knowledge are worthy to rank with those that laid the foundation of the Atomic laws of Chemistry.

"To what extent Mendel's conclusions will be found to apply to other characters, and to other plants and animals, further experiment alone can show. Though little has yet been done, we already know a considerable group of cases in which the law holds, but we also have tolerably clear evidence that many phenomena of cross-breeding point to the co-existence of other laws of a much higher order of complexity. When the paper before us was written Mendel apparently inclined to the view that, with modifications, his law might be found to include all the phenomena of hybridisation, but in a brief subsequent paper on hybrids of the genus Hieracium he clearly recognized the existence of unconformable cases.

"Nevertheless, however much it may be found possible to limit or extend the principle discovered by Mendel, there can be no doubt that we have in this work, not only a model for future experiments of the same kind, but also

a solid foundation from which the problem of heredity may be attacked in the future."

We cannot go into the details of Mendel's experiments—for this the reader is referred to the paper itself—but he seems to have set out with the idea of discovering some general law governing the formation and development of hybrids, which would account for the striking regularity with which the same hybrid forms always reappear whenever fertilization took place between the same two species, and on looking round for suitable subjects for experiment he selected, primarily, various kinds of peas, species or varieties, and subsequently a few other kinds of Leguminosæ. The results are very difficult to summarize, but one of the principal conclusions arrived at was that when two plants possessing differentiating characters in any particular organ were crossed together the said characters were either transmitted wholly or not at all. Thus, if a pea having smooth, round seeds were crossed with another having angular, wrinkled ones, the resulting hybrid seeds would be either smooth or wrinkled (not intermediate), though both might appear in the same pod. Those characters which were transmitted entirely or almost unchanged were termed "dominant," while those that disappeared or became latent were termed "recessive," but these might reappear unchanged in a subsequent generation. It is in the proportions of this reappearance that the Mendelian law begins to be demonstrated, the dominant characters appearing constantly in the proportion of three to one, without any transitional forms appearing. In the second generation the same proportions were maintained, and the law held good for subsequent generations, the experiments being continued for eight years. From the facts observed Mendel deduces the principle that in hybrids the ovules and pollen-grains do not contain a heterogeneous admixture of prepotencies, but retain their individuality throughout, and combine with each other on well-defined lines, the eventual combination of characters being strictly confined to the number of combinations which may be possible between the original ones, these retaining their integrity throughout all transmitions.

We have been asked how far Mendel's results throw light upon any of the facts observed or recorded by Orchid hybridists, and what practical application they may have. As regards the first point, we do not think any experiments have been made with Orchids which are strictly comparable, and although we have read Mendel's paper twice, we admit that we cannot follow all the stages of his experiments. There are several cases on record of seedling Orchids having been raised from hybrids fertilized with their own pollen, and if we recollect rightly some of them are said to have reverted to one or the other parent, but it is doubtful if these experiments were conducted with all the care necessary in such cases. We should like to see a few carefully conducted experiments on these lines, and would suggest

Calanthe × Veitchii and Paphiopedilum × Leeanum or P. × Lathamianum as suitable subjects. These should be carefully self-fertilized, and all the resulting seedlings taken care of until they flowered. Those who see a possibility of practical results in the way of reversion might choose the hybrids of P. Fairrieanum for experiment. For ourselves we may add that certain hybrids reproduce themselves perfectly true from seed, and we do not see what possible place the Mendelian law provides for such plants. A law should be capable of general application, and we should much prefer to say in Mendel's own words :—"Even the validity of the law formulated for Pisum requires still to be confirmed, and a repetition of the more important experiments is consequently much to be desired."

At the meeting of the Royal Horticultural Society's Orchid Committee held on November 28th last the following communication upon the application of Mendel's law to intermediate hybrid characters from Captain C. C. Hurst was read :—

Mendel's Law.—"Mendel's law of the dissociation of hybrid characters according to the simple formula A + 2A*a* + A*a* was enunciated in 1865, but it was not until a short time ago that the law was confirmed and re-established by the experiments and researches of Prof. Hugo de Vries, Correns, Tschermal, and Webber. In addition to the above, we have been favoured with an admirable translation and exposition of Mendel's work in the *Journal* of the Society by Mr. W. Bateson, F.R.S. Hitherto Mendel's law seems to have been applied to 'discontinuous' hybrids only, and not at all to the more numerous class known as 'intermediate' hybrids. Having for some years past made a special study of Orchid hybrids (which belong for the most part to the 'intermediate' class), I thought that it might perhaps be of some interest to ascertain whether Mendel's law held good in regard to them. A careful analysis of the inheritance of 3,500 pairs of specific characters was therefore made in the following genera, viz., Cattleya, Lælia, Lælio-cattleya, Cymbidium, Dendrobium, Odontoglossum, Miltonia, Sobralia, Zygopetalum, Paphiopedilum (Cypripedium), Phragmipedilum (Selenipedium). These experiments show that, with certain modifications, Mendel's law appears to hold good for 'intermediate' hybrid characters, as well as for discontinuous ones, with the further advantage that the law can be applied to primary hybrids as well as to secondary ones, and to cross breeding generally, as well as to in-breeding by self-fertilization. I hope to publish a detailed account of these observations (with your kind permission) in the *Journal* of the Society at an early date. Should these results be confirmed, the present scope and value of Mendel's law will be considerably extended, and we shall be getting a little nearer towards the solution of the problems of heredity."

CYPRIPEDIUM FRED. HARDY AND C. × RADIANS.

THE history of the curious Cypripedium Fred. Hardy (and its allies) as given at page 369 of our last volume, has brought the following interesting communication from Mr. J. T. Rushton, gardener to Captain Hincks, Terrace House, Richmond, Yorks:—"I am sending you flowers of a seedling Cypripedium. It is a cross between C. Spicerianum and Charlesworthii, the latter being the pollen parent. The seed was sown in March, 1897. The plants are very small, and the leaves are about intermediate between the two parents. I should be pleased to know if it throws any light upon the history of C. Fred. Hardy, whose history I have just read." The two flowers sent do not agree with the one sent by Mr. Eichel, whose resemblance to C. Fred. Hardy we have already remarked, but are unmistakably intermediate between the two parents mentioned. The dorsal sepal is flat, or very slightly concave, 2¼ inches across, with a small green area at the base, a rose-purple medium band, and the remainder white, beautifully veined and reticulated with rose. The petals are spreading rather more undulated and less reticulated than those of C. Charlesworthii, while the colour, like that of the lip, approaches that of the other parent. The staminode is whiter and less folded than in C. Spicerianum, but otherwise it most resembles this parent. One of the seedlings is considerably darker than the other, having much more rose on the dorsal sepal, both in front and behind, while the petals and lip are also more suffused with brown. It is a most charming little hybrid, and a worthy companion to its two parents. According to the record it should be identical with Mr. Eichel's hybrid, but it is not so, and indeed differs from it much more than does that from C. Fred. Hardy.

Since the above was written we have received from Mr. A. J. Keeling, Cottingley, Bingley, a flower of the hybrid exhibited by him at Manchester on November 26th, under the name of C. × radians (Charlesworthii × Spicerianum, see vol. ix., p. 367). Mr. Keeling remarks that he is perfectly certain of the cross, and that he has two more seedlings in flower, all being alike, both flowers and foliage being intermediate. We may briefly add that it closely resembles the lightest of the two forms sent by Captain Hincks. Mr. Keeling remarks that he fails to connect the hybrid with C. Fred. Hardy, the differences being so large, which makes the origin of the latter more doubtful than ever, unless it be a distinct species, or a distinct form of C. Charlesworthii. Finally he asks, "Do you think it could be a natural hybrid between Charlesworthii and the species noted as C. Crawshayæ? Of the latter very little is known, but by the description given there seems to be some resemblance to C. Fred. Hardy, and there may be

some connection between them." We should like to defer an answer until someone sends us the necessary materials.

Having read your interesting article on Cypripedium Fred. Hardy, and being the original introducers of the plant, we think the notes made by the late Mr. Richard Moore, who discovered it, will be of some use in throwing a little light on the subject. We enclose the book in question, and also send you a flower of a cross between C. Charlesworthii and C. Spicerianum, the latter being the seed parent—every care having been taken in recording the parentage. The late Mr. R. Moore repeatedly informed us that he never once found C. Charlesworthii and C. Spicerianum growing near each other, but C. Fred. Hardy was discovered among a batch of C. Charlesworthii. Several plants of supposed C. Fred. Hardy and C. Charlesworthii album were sent to us during the time Mr. R. Eichel was in our employ, but on flowering several of them proved to be ordinary forms of C. Charlesworthii.

J. W. MOORE.

The note book alluded to is a most interesting one, in Mr. R. Moore's own handwriting, and we have extracted the following notes:—"White Cyp. Charlesworthii. The flower was too much gone except to show that the back sepal was pure white; the base of the sepal was too withered to know what colour it is. Undoubtedly distinct." Afterwards was added:—"Sold Charlesworth; correct to description. This plant is a true C. Charlesworthii in appearance and markings, and found growing with C. Charlesworthii." A few pages later we find a record of four plants—"C. Fred. Hardy. The above plants may or may not be Fred. Hardy. I had it in bud, but the Rangoon climate, as usual, nipped it. However, I opened it, and there is no doubt the back sepal is pure white. I fancy there is greenish yellow at the base, but the bud was not sufficiently developed to say exactly. Anyhow you can compare the plant with F. Hardy." Afterwards was added:—"Sold Charlesworth." A few pages earlier we find a record of some plants of C. Spicerianum, with the note:—"Collected 200 miles away from C. Charlesworthii district."

These being the collector's own memoranda, their value will be apparent, and we thank Mr. Moore for the loan of the note-book, and for the privilege of making such extracts as we think likely to throw light on the subject. We may add that there are also notes on C. bellatulum album and Vanda × Moorei, two other of Mr. R. Moore's discoveries, but these are outside the scope of the present inquiry. The flower sent with the above communication, we may add, was not C. Fred. Hardy (whose origin still remains doubtful) but thoroughly agreed with C. × radians, as sent by Captain Hincks and Mr. Keeling.

CUTTING OFF LEAFLESS PSEUDOBULBS OF ORCHIDS.

It has often been asked, should the old, leafless pseudobulbs of Orchids be cut off or not? Gardeners generally seem to avoid being drawn into discussing this very moot point. Some very old growers of long standing do not cut them off, but will not say why. Others, who admire nice, healthy looking plants, do cut them off, and say they cannot see what use they serve if left on. Taking Lælias and Cattleyas (L. anceps excepted), for example, I hope the following few words will cause others more capable than I to give their experience. I think in their habitats nature intends the old, leafless bulbs to remain, as a help to catch any falling leaves or other matter that is blown about, and as the nightly mists condense on the trees, and run down and saturate the plants and fallen leaves, and even the old bulbs, they form a reserve of moisture for the daytime. Coming back to artificial culture under glass, we find that some growers hold that these effete (?) bulbs help the younger or leafy part of the plant by giving off their life's blood, so to speak. But this is very doubtful, unless the plant is short of roots; then the leaves will draw nurture from all the bulbs. Others maintain that the leafless bulbs rob the younger part of the plant of its due. But how can this be when such bulbs have no leaves to pump to themselves moisture from the rest of the plant, or even from the roots, which are generally in front of them? If we wish to increase or rather divide a plant into several pieces, and the plant has only one lead, we cut through the rhizome in front of the bulbs with prominent eyes, and this we do even at leafless bulbs. This operation itself is proof that the grower knows that the leading part, with leaves, takes the lion's share of the plant's nourishment. Again I, for my part, say that a plant short of roots does draw upon those old bulbs, like a child from its parent, and more so with growers who persist in giving plenty of top ventilation in the daytime. The best reason one sees for removing those old bulbs is the large pots it takes to hold the plants when these old bulbs are left on, causing so much more potting material to be used; and we are all agreed that the less peat used the better it is, so long as the plant holds firm in its place. Many growers, again, place the plant, in potting, so as to bury these old bulbs; showing by doing so that they believe the plants will derive benefit from them, but often afterwards they find such bulbs dried up, or more often rotten, the latter especially if too much peat is used. With this latter method of potting we sometimes find that these buried bulbs push up a new lead through some wound in the rhizome; which only shows how the plants will increase themselves. The old grooves are not easily left, but to those who wish for nice looking plants I would say, cut off those leafless, dry looking faggots.

JAS. HAMILTON.

DENDROBIUM SPECTABILE.

THE annexed illustration shows a very fine example of the remarkable Dendrobium spectabile from the collection of H. F. Simonds, Esq., Woodthorpe, Beckenham (gr. Mr. Day), which was exhibited at a meeting of the Royal Horticultural Society on January 15th, 1901. The plant bore five racemes and an aggregate of thirty-five flowers, a number which is likely to be largely exceeded when it becomes thoroughly established. The history of the species was given in detail in our pages in 1896, when Sir Trevor Lawrence received a plant from a correspondent in the Solomon Islands.

FIG. 2. DENDROBIUM SPECTABILE.

A few years later Messrs. F. Sander & Co. succeeded in making an importation of it, and it flowered almost simultaneously in several collections in December, 1899, as recorded at page 13 of our eighth volume. On December 19th a plant bearing a raceme of four flowers was exhibited at a meeting of the R. H. S. by Major Joicey, Sunningdale Park, and was awarded a First-class Certificate. The plant here illustrated flowered about a year later, and shows marked progress as the result of another season's culture. The photograph was taken and kindly sent by Mr. H. J. Chapman. It is remarkably distinct, and requires the same treatment as D. Phalænopsis.

EVENTS OF 1901.

In glancing back at the events of the past year we again find evidence of steady progress. Perhaps the most striking event was the introduction by M. Warpur of Phaius tuberculosus, a plant which had been known to science for about eighty years, for the last twenty of which another plant had been doing duty in our collections. The commotion made by this discovery will be fresh in the minds of our readers, and we need only refer to the history of the question and figure of the plant which was given in our February issue (p. 41). The introduction of Cynorchis purpurascens by the same collector is also an event of some interest, for it is a handsome thing, which seems to thrive well at Kew. It is another Madagascar plant, and was originally described with the preceding. Dendrobium Ashworthiæ is an interesting species from New Guinea, at present imperfectly known. There is very little else in the way of imported plants to record, but allusion may be made to a list of ten novelties recently described in the *Kew Bulletin* by Mr. Rolfe, and noted at page 339 of our last volume. One of these was Aëranthes caudata; and a second species, A. ramosa, also flowered at Glasnevin, and was noted at page 352. Odontoglossum maculatum Thompsonianum is an exceptionally large variety of this well-known species, which was figured at page 337. Stanhopea connata and Schomburgkia Thomsoniana are two interesting re-introductions which have flowered during the year, and whose history has been given in our pages.

Hybrids.

It is when we come to speak of hybrids that novelties become common, and the number seems to increase year by year. Among the more striking may be mentioned the two handsome hybrids from Lælia Digbyana, Lælio-cattleya × Maronæ (figured at page 329) and L.-c. × Edgar Wigan, the brilliant little Sophrolælia × Gratrixiæ, S. × Valda, and S. × Orpeti, Odontoglossum × Braeckmanii and its variety Crawshayanum, Epicattleya × Orpeti, Dendrobium × Ellisii, D. × Mantini, Phragmipedilum × suave. Lælia × Diana, Brassocattleya × nivalis, which must be extremely near the natural hybrid B. × Lindleyana, &c. A hybrid from Cattleya Rex has now appeared and is known as C. × Clymene, besides which C. × fulvescens and C. × Clarkiæ have also been described in our pages. Lælio-cattleya is represented by L.-c. × Agnes, × Alberti, × Clytie, × Diogenes, × Hamiltoni, × Issy, × Vinesiæ, and × Wilsoniæ (figured at page 371). Lastly among Paphiopedilums may be mentioned P. × Eos, × Kubele, remarkable for having five species in its ancestry, × Rappartii, × Rolfei (figured at page 305), × Vanneri, and × Youngiæ. We cannot give a complete list, but records of others will be found in our reports.

Certificated Orchids.

The number of Orchids to which a First-class Certificate was issued by the R. H. S. was rather in excess of last year, being in the proportion of thirty to twenty-four, according to our notes. They include ten Odontoglossums, eight Lælio-cattleyas, seven Cattleyas, three Lælias, and one each of Sophronitis, Sophrocattleya, and Cypripedium. This to some extent also indicates the relative importance of the different groups. Going into details we find five varieties of Odontoglossum crispum, namely Annie, Confetti, purpurascens, Queen Empress, and Raymond Crawshay, the remaining Odontoglossums being O. Hallii King Edward VII, O. × loochristiense Rochfordianum, O. luteopurpureum Coundon Court var., O. maculatum Thompsonianum, and O. × Wilckeanum Golden Queen. Lælio-cattleya × Digbyano-Mendelii was certificated three times, the forms being called Hessle var., Tring Park var., and Veitch's var., the other Lælio-cattleyas being × Edgar Wigan, × Haroldiana Charlesworth's var., × Semiramis superba, and × warnhamensis. The Cattleyas were × Browniæ Veitch's var., × Hardyana Rochfordiana, × Iris aureo-marginata, Lueddemanniana Stanleyi, × Miss Harris var. E. Ashworth, Schrœderæ heatonensis, and Warscewiczii Wigan's var. The Lælias are represented by × Olivia and two forms of L. Jongheana, Ashworthiæ and Kromeri, the former being an albino and the latter an exceptionally dark form. The others were Cypripedium × Maudiæ magnificum, Sophrocattleya × Nydia, and Sophronitis grandiflora Rossiteriana. Lælio-cattleya × Maronæ ought to have been mentioned in this connection, but the award was withdrawn because a flower was not handed in for painting. Those which received Awards of Merit form a much longer list, and we must pass them over with this brief mention, as also the numerous plants certificated by the Manchester Orchid Society.

Use of Leaf-mould.

A matter which has come prominently to the front during the year has been the culture of Orchids in leaf-mould. A Commission was appointed to report upon the question by the Société d'Horticulture de France, and the practice has been adopted in this country by Messrs. Charlesworth, and others. The system is at present on its trial, but some of the results are so promising, and the reports of those who have tried it so favourable, that we should not be surprised to see its use become pretty general in the future, at all events for certain classes of Orchids.

Losses during the Year.

Several losses by death have occurred during the year, commencing with Sydney Cooke, gardener to De Barri Crawshay, Esq., on New Year's Day. Shortly afterwards the nation had to deplore the death of Her Majesty Queen Victoria. Other deaths successively recorded in these pages were

those of John Baguley, foreman and traveller for Messrs. Charlesworth & Co., Thomas Rochford, of the Turnford Hall Nurseries, James Cypher, of Cheltenham, and A. H. Smee, of Carshalton. And before the year closed, Alfred Bleu, one of the pioneers of hybridisation in France, passed away, as will be seen by a note on page 31.

A hasty survey of the more important events of 1901 shows that Orchidology has again made substantial progress, and this is likely to be considerably augumented during the coming year, so great is the number of seedlings which are rapidly approaching the flowering stage.

CALENDAR OF OPERATIONS FOR JANUARY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE following temperatures will be useful as a guide for the present month, subject of course to the atmospheric conditions prevailing outside. The aim should be to keep them as steady as possible, without the necessity of employing any excess of fire heat.

COOL HOUSE.—Day, 50° to 60°; night, 45° to 50°.

INTERMEDIATE HOUSE.—Day, 55° to 65°; night, 50° to 55°.

EAST INDIAN HOUSE.—Day, 65° to 70°; night, 60° to 65°.

With the beginning of another year, we shall from now onwards have plenty to engage our attention, and the Orchidist has the satisfaction of knowing that his houses will gradually assume a gayer appearance.

THE EAST INDIAN HOUSE is just now the subject of attention, for we have here such welcome kinds, either flowering or approaching that stage of beauty, as Saccolabium giganteum, Angræcum sesquipedale, A. eburneum, A. Sanderianum, A. citratum, and the pretty little dwarf species A. fastuosum. Vanda gigantea is also pushing its spike, and should have a light position in order to develop it properly. Phalænopses, too, are showing very prominently, and will soon make a bold display. Amongst them may be mentioned P. Stuartiana, P. Schilleriana, P. × leucorrhoda, P. amabilis, P. × intermedia, and P. Lueddemanniana. Water should be given to the members of this genus very sparingly—an occasional moistening of the moss will suffice to meet their requirements at the present time.

Eulophiella Elizabethæ will almost have completed growth, and its spikes will soon begin to push from the base of the newly-made pseudo-bulbs. It is rather a difficult Orchid to grow. I find it does best when given a shady position in the warmest house, and it enjoys plenty of heat and moisture whilst growing, and should never be allowed to get really dry in winter.

Diacrium bicornutum, another beautiful inmate of this house, will have completed its growth, and the spikes will be in an advanced stage. It thrives well if grown in a basket, suspended from the roof, and given much the same treatment as the before-mentioned species. It should now be kept on the dry side.

Oncidiums ampliatum and splendidum are forward with good spikes, and are always welcome. The latter is often difficult to keep in good condition in the ordinary compost of peat and moss for any length of time, and it is surprising the results obtained by transferring it into the leaf soil, provided the water-pot is used judiciously.

INTERMEDIATE HOUSE.—The deciduous Calanthes have made, and will continue to make, a grand display. As they go out of flower, they may be taken out of their pots, and placed in boxes on a shelf in the Cattleya House, until required for potting later on. Lælia anceps and varieties are just now at their best. When out of flower they should be quietly rested, affording water sufficient to keep the pseudobulbs firm. L. Gouldiana, L. autumnalis, and L. albida, require the same treatment when out of flower. Cœlogyne cristata will have its spikes well advanced. Water should be applied moderately at this stage, for the least excess at the roots or in the atmosphere will often cause them to decay.

Lælia Jongheana will be showing its flower buds, and should have every encouragement, by suspending it in a light position in the Cattleya House. It is also necessary here to give a caution to apply water sparingly at this period, the flowers being so sensitive that the least excess will cause them to turn yellow. The brilliant Sophronitis grandiflora is making a charming display. I find it is better to grow them on the stage in a shady corner of the Cool House during summer, and suspend them in an Intermediate House late in the autumn, never allowing them to become really dry.

DENDROBIUMS.—A good many of these have now their flower buds in a forward stage, and already we have in bloom D. aureum, D. moniliforme, D. × burfordiense, D. × Cassiope, and D. × endocharis, these being amongst the earliest to flower. Others may now be brought on gradually, by placing them in a little extra warmth, which will greatly assist in the development of the flowers.

During the present month, if not already done, the glass roofs should be thoroughly cleansed inside and out, for it is essential that the plants should receive as much light as possible at this period. The plants, too, should be carefully examined for insect pests, for they are more easily eradicated now than at a later date. In re-arranging the plants on the stages each should be given a position to enable it to obtain the maximum of light, and a note made ot any that will require potting at a future date.

WATERING during the present month must be done carefully in the various departments, giving sufficient only to meet the requirements of the various genera, whilst damping down will depend greatly on the amount of fire heat required. In no case should this be carried to excess, or harm will be the result. Endeavour to maintain the houses as genial and health-giving as possible by avoiding a dry, hot, stuffy atmosphere.

TO OUR READERS.

THE ORCHID REVIEW is now entering upon its tenth year of publication, and we have received a number of congratulatory letters, for which we thank our esteemed correspondents. We have also received some suggestions which deserve consideration. It will be remembered that last year we took the step of reducing the cost of the work to sixpence monthly. At that time many correspondents welcomed the change, but a few regretted it, and would rather have seen an increase in the number of illustrations, or the introduction of occasional, if not monthly, coloured plates. At all events the change has had the effect of largely increasing the circulation, and if the steady progress which has hitherto attended the work is maintained in the future we shall be able to increase the number of illustrations. Coloured plates, we fear, are too costly, and until the new three-colour process of photography comes with the range of practical politics we may have to be content with monochrome, which, apart from colour, leaves little to be desired. The superior accuracy and pictorial effect of the photographic method, as seen in the half-tone process, over the old line drawing is now recognized by its general adoption. Suggestions for giving a more complete record of the ever increasing number of hybrids are already being acted upon, but in this, as in several other matters, we hope for increased co-operation on the part of our readers, whose energy is apt to become embarrassing, so rapid is the progress which is being made. A little of this energy might be usefully employed in furnishing us with occasional notes of their doings and personal experiences, in a form for publication. Our pages are always open to such communications, which give an additional interest and enlarge the usefulness of the work. Photographs for reproduction should be good strong prints on smooth paper, and with a well contrasted background. Any necessary alterations and improvements will be introduced as circumstances require, for our aim is to keep the work progressive, and make it indispensable to all lovers of these beautiful plants. Our readers can materially help us in attaining this end, and we shall rely upon their assistance. Finally to one and all we wish A HAPPY NEW YEAR, and increased prosperity to their collections.

NOMENCLATURE OF ORCHIDS.

Is it possible that growers of Orchids are so indifferent to their own interests that there is not to be a practical outcome from the vigorous appeal for dealing with the nomenclature of Orchids upon common sense lines made by Mr. De Barri Crawshay in your issue of March, 1901 (page 82)? Mr. Chamberlain has also frequently referred to this subject, and it is clear from other letters which have appeared in the ORCHID REVIEW that the writers are in full sympathy with the object of the article. The surprising point is that, notwithstanding a unanimous opinion that something should be done, the matter has again been shelved. No doubt there are many difficulties in the method of dealing with it, and I gather that the solution is not entirely in the hands of the R. H. S. Orchid Committee. It is, however, one of considerable importance, and if the Committee (who no doubt desire a better state of things) cannot deal with it, would it be possible for them to call a meeting of those who are interested, state what the difficulties are that stand in the way, and have the question generally discussed? At least we should then know whether it is possible to attain our object, or have to confess ourselves helpless. In making this suggestion I am painfully mindful of the proverb relating to "Fools" and "Angels," but feel convinced that until something is *done*, as well as *written*, the confusion will be an ever-growing tax upon the memory.

RCHD. G. THWAITES.

Streatham.

PAPHIOPEDILUMS AS WINTER-BLOOMING PLANTS.

A VERY beautiful series of twenty-six flowers from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), illustrates the great value of the Paphiopedilum as a winter-blooming plant. Mr. Wrigley writes:—"These flowers are some of the choicest varieties which were placed before the Committee of the Manchester and North of England Orchid Society yesterday (December 12th), and the group was awarded the Gold Medal of the Society. The group consisted of 47 plants, and there were 109 fully expanded flowers."

First we may mention a dozen forms of P. insigne, culminating in the splendid Harefield Hall variety, whose dorsal sepal measures over 2½ inches across, and in which the blotches are very large. P. i. punctato-violaceum (otherwise known as Chantini) is too well known to require description. P. i. Berryanum is rather lighter in colour, and the green area of the dorsal sepal extends near to the margin except at the apex; while P. i. Thompsoni has rather fewer and larger spots, and the green area is of deeper colour.

P. i. tesselatum is rather smaller, and has very numerous blotches, which are more or less confluent. P. i. Berryanum is a rather large flower, with the dorsal sepal longer than in the preceding forms, and the blotches very few and large. P. i. macranthum has a broad dorsal sepal, with the spots rather large and not very numerous, and the petals well spotted on a light ground, in which it differs from all the preceding. P. i. smaragdinum is a large flower, with very little brown on the petals and lip, while the spots on the dorsal sepal are few and rather small, and the white area broad. P. i. corrugatum is remarkable for its constantly corrugated lip, with the dorsal sepal much as in the old P. insigne. Of yellow forms there is the well-known and beautiful P. i. Sanderæ; P. i. Dorothy with a rather broader dorsal sepal, which is regularly blotched throughout the green area with indistinct greenish-brown blotches; and P. i. Youngianum, approaching the last, but the lip and dorsal sepal rather narrower, and the blotches extending into the white area at the apex as faint purple traces.

P. × Leeanum is represented by six fine forms. P. × L. superbum is marked by the small green basal area, and the numerous small purple spots on the dorsal sepal. A second form with the same name has the petals and lip darker in colour. P. × L. conspicuum is a very fine form having more green and fewer purple spots. P. × L. perfectum is much like the last, but the petals, and indeed the whole flower, very regular in shape. P. × L. magnificum is a fine thing, having very few spots on the white area, but a broad purple band extending to the apex of the dorsal sepal. P. × L. Clinkaberryanum has very many small purple spots on the dorsal sepal, which is nearly three inches broad, and the petals are an inch across. It is the largest of the series.

P. × nitens magnificum, one of Mr. Wrigley's seedlings, is a remarkably handsome form, approaching P. villosum in the warm colour of the lip and petals, the latter also measuring 3-8 inches broad, while the bright green area of the large dorsal sepal is very regularly blotched with dark brown, and sharply defined from the very broad white margin. P. × n. Wrigleyanum, another Bridge Hall seedling, is remarkable for its broad, slightly concave, dorsal sepal, which is densely spotted with minute dark brown spots, and the horizontally spreading petals. The well-known P. × Sallieri Hyeanum is a form of the same hybrid, having the spots on the dorsal sepal small and rather scattered.

The remaining flowers are the handsomely spotted P. × Arthurianum; P. × calloso-Warneri, a very richly coloured flower, having the dorsal sepal veined almost throughout with crimson; P. × Minos magnificum, having many minute spots on the dorsal sepal and petals: P. × Swinburnei magnificum, a large flower with very handsomely spotted petals; and the beautiful P. × Ceres Fascinator, in which the caracters of P. hirsutissimum

and P. Spicerianum are so effectively combined. The flowers show evidence of excellent culture, and furnish some idea of the beauty of the distinguished group from which they were cut. These plants are likely to occupy an increasingly prominent place in our collections as time goes on.

Three handsome flowers are sent from the collection of R. le Doux, Esq., Marlfield, West Derby, Liverpool, by Mr. Davenport. One is a very pretty yellow form of P. insigne, in which the spots are paler than usual, and those which extend into the white area clear light purple. The second is a good, dark P. × Leeanum, and the third a very large and finely-shaped form closely resembling P. × L. perfectum. The plants are in four-inch pots, and bear three flowers each.

FIG. 3. PAPHIOPEDILUM × LEEANUM.

P. × Leeanum is unquestionably the most popular of winter-blooming hybrids, and its characters are well shewn in the annexed figure, which is reproduced from an excellent photograph sent by R. W. Rickards, Esq., The Priory, Usk, and which was taken by Mr. H. Dunning, Usk. It was the first hybrid from P. Spicerianum, and flowered for the first time in 1884, only five years after that species was originally described, from which it is evident that Messrs. Veitch must have utilized the pollen of one of the earliest flowers produced in this country. P. insigne Maulei was the seed bearer. It was dedicated to W. Lee, Esq., of Leatherhead. Since then it has been raised in several other collections, and its varieties are now becoming very numerous.

SOCIETIES.

ROYAL HORTICULTURAL.

THE last meeting of the year was held at the Drill Hall, Buckingham Gate, Westminster, on December 17th, when, owing to the inclemency of the weather (some 12° of frost being registered), the Orchid exhibits were not numerous, though a fine display of the Society's paintings of certificated Orchids fully compensated for the deficiency. Messrs. James Veitch & Sons had entered a group of hybrids, but deemed it prudent not to bring them in such severe weather.

Captain Holford, Westonbirt, Tetbury (gr. Mr. A. Chapman), exhibited a fine group of well grown Cypripediums, and was awarded a Silver Flora Medal. It included some good varieties of C. insigne, as C. i. aureum, C. i. Dorothy, C. i. Dormanii, C. i. montanum aureum, C. i. Horsmanii, C. i. Harefield Hall var., C. i. citrinum, C. i. Sanderæ, and some others; also C. × Tityus, C. × Euryades, C. × Leeanum burfordiense, C. × L. giganteum, C. × Milo Westonbirt var., C. × Mrs. Tautz, having a fine, broad, white dorsal sepal, much spotted with purple; Cattleya Walkeriana, Lælio-cattleya × bletchleyensis and Vanda cœrulea.

J. G. Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), received an Award of Merit for Cypripedium × Troilus (Sallieri Hyeanum × insigne Sanderæ) a distinct and handsome hybrid, most resembling the latter, having a yellow dorsal sepal, white in the upper part, and the petals and lip yellowish, tinged with brown.

R. Tunstill, Esq., Monkholme, Brierfield, Burnley (gr. Mr. Balmforth), received an Award of Merit for Lycaste × Tunstilli, a supposed natural hybrid imported with L. Skinneri, which it most resembles, but differs in having longer and more acute sepals, and a narrow lip with downy margin. The sepals are rose-coloured, the petals white, with some pink spots in the centre, and the lip ruby red with white markings.

Sir Trevor Lawrence, Bart., Burford Bridge, Dorking (gr. Mr. White), showed Odontoglossum × crispo-Harryanum, a finely coloured example of Cypripedium × Euryades, "Burford variety"; and a cut spike of Vanda Sanderiana roseo-alba, having the upper sepal and petals nearly white, with some purple spots on the inner halves, and the lower sepals greenish with some purple veining at the base.

The Hon. Walter Rothschild, Tring Park (gr. Mr. Hill) showed Lælio-cattleya × intermedio-flava and the clear yellow Mormodes badium var. luteum.

F. Bibby, Esq., Hardwick Grange, near Shrewsbury, sent a fine example of Lælia anceps "Lady Stanley Clarke."

Dr. C. B. Cranstoun, Ludlow (gr. Mr. Godfrey), sent Lælio-cattleya ×

Cranstouniæ (C. Harrisoniana × L. tenebrosa), a very interesting plant, which was described at page 19 of our eighth volume.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), exhibited a spike of a plant called Lælia anceps Amesiana Theodora, having the sepals white, tinged with rose, the petals rather darker and tipped with purple, and the front lobe of the lip deep rich purple.

Mrs. Haywood, Woodhatch Lodge, Reigate (gr. Mr. Salter), sent Cypripedium × Lawrebel punctatissimum, having the petals spotted with dark purple.

F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey (gr. Mr. Stafford), sent cut flowers of Cypripedium insigne aureum, C. i. giganteum, C. × Leeanum giganteum, C. × L. reticulatum, and Sophrocattleya × Hardyana.

H. S. Leon, Esq., Bletchley Park (gr. Mr. Hislop), showed the rare and interesting Cattleya × Arthuriana (Dormaniana × luteola) and Cattleya × preciosa var. Hislopi, a handsome form with rosy lilac flowers, veined with purple on the lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed a very finely coloured cut flower of Lycaste × Balliæ superba.

F. Wellesley, Esq., Westfield, near Woking (gr. Mr. Gilbert), showed Cypripedium × Minnie (? × Leeanum × nitens), having the dorsal sepal white, with a small green base, and some purple spots in the middle, and the lip and petals yellowish with brown markings.

Messrs. Heath & Son, Cheltenham, showed Cypripedium × Leeanum viride, C. × Lathamianum giganteum, and two pretty light forms of Dendrobium Phalænopsis.

M. Lucien Linden, Brussels, exhibited plants of the yellow Cypripedium × insigne Chantini Lindeni, and the handsome Oncidium varicosum moortebeekense, having a well-marked red-brown blotch at the base of the bright yellow lip.

Mr. J. McBean, Cooksbridge, showed a large form of Cypripedium insigne, called "McBean's variety," in which the dorsal sepal was more elongated than usual.

Messrs. C. W. Nieuwerf & Co., Pinner Road, Harrow-on-the-Hill, showed examples of their bamboo blinds, specially recommended for shading Orchid and other plant houses. The blinds are made in Java, from long strips of bamboo, woven together with a strong cord of "Kemoetie," and are light and easy to roll up, either with or without a roller. They afford the necessary shade to the plants without light or ventilation being interfered with, and the Committee passed a Vote of Commendation to them.

A very fine display of the Society's pictures of Certificated Orchids, made by Miss Roberts, was arranged down the middle of the hall. Cypripedium was represented by about sixty drawings; Cattleya by about one

hundred; Lælia and Lælio-cattleya by a similar number, and Odontoglossum by about seventy. Some other genera were also shown, but not the entire collection. They formed a very interesting and instructive series.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THE last meeting of the year was held at the Coal Exchange, Manchester, on December 12th, when there was a fine display of Orchids.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a very fine collection of Cypripediums, to which a Gold Medal was Awarded. It contained 47 plants of 34 different varieties, and an aggregate of 109 flowers. C. insigne was represented by seventeen and C. × Leeanum by eight varieties. A First-class Certificate was also given to C. × Leeanum Clinkaberryanum, and an Award of Merit to C. insigne macranthum.

R. Tunstill, Esq., Burnley, exhibited several Cypripediums, and received Awards of Merit for C. × belgicum (evidently a variety of C. × aureum), and C. × Helen (C. bellatulum × insigne var. Chantini). A Vote of Thanks was accorded to the group.

G. W. Law-Schofield, Esq., Rawtenstall (gr. Mr. Shill), also exhibited C. × Leeanum var. Clinkaberryanum, the above award being confirmed. An Award of Merit was given to an albino form of C. × nitens, from the same collection.

J. Leemann, Esq., Heaton, Mersey (gr. Mr. Edge), exhibited a collection of plants, among which were many bright flowering Lælias and Lælio-cattleya hybrids. Lælia anceps Sanderiana was also well shown in cut flowers, and a fine plant of L. autumnalis alba received a First-class Certificate and a Cultural Certificate.

Messrs. Stanley Ashton & Co., Southgate, exhibited a fine collection of Vanda cœrulea, which gave a considerable amount of brightness to the meeting, one variety called V. c. magnifica being notable for its fine, deeply coloured blooms. It received an Award of Merit. Several Cypripediums were shown by the same firm. A Silver Medal was awarded for the group.

E. Rogerson, Esq., Didsbury, staged a nice collection of plants, some good things being noted in the way of Cypripediums. C. callosum Sanderæ was shown in good condition, the flower stem being very short, and the flower large and well shaped. C. × Minosa was also shown, and C. × Leeanum Albertianum received an Award of Merit.

Mr. J. Cypher, Cheltenham, received an Award of Merit for Lælia anceps Amesiana.

Mr. J. Robson, Altrincham, exhibited Cypripedium insigne citrinum, and C. × Leeanum giganteum.

Messrs. Hugh Low & Co., Enfield, exhibited a cross between Cypripedium insigne and hirsutissimum.

M. A. A. Peeters, Brussels, exhibited Lælio-cattleya × Liptoni, a hybrid between Lælia anceps and Cattleya labiata.

W. Duckworth, Esq., Flixton, exhibited a grand plant of Cypripedium insigne Harefield Hall var., with finely expanded blooms of large proportions. A Silver Medal and a Cultural Certificate were awarded.

Mr. A. J. Keeling, Bingley, Yorks, staged a handsome group of Cypripediums, to which a Silver Medal was given. C. × Niobe excelsis received an Award of Merit. Other good things in the group were C. × Sallieri superbum, C. × Eismannianum, and C. × Leeanum Prospero.

LÆLIA-CATTLEYA × WRIGLEYI.

THIS very interesting hybrid between Lælia anceps ♀ and Cattleya Bowringiana ♂ was raised in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and was described at page 359 of our seventh volume, from the first solitary flower produced. Its photograph was given at p. 145 of our eighth volume. It has now developed a three-flowered spike, which is sent by Mr. Wrigley, with the following note :—" The plant did not bloom last year owing to its having made a very weak growth, but this year it made a very strong growth and sent up a spike, which produced a three-flowered inflorescence. During the foggy weather which we have experienced of late I feared that I should never see the blooms open, but, strange to say, no damage was done by the first fog; the flowers matured beautifully, and I was looking forward to having the plant photographed and also sending the flower spike to you. Unfortunately another and more dense fog came upon us last night and destroyed the flowers, but I send them so that you may form some idea of what the flowers were, or would have been had you seen them in perfect condition. It is somewhat disappointing to have waited thirteen long years to see the seedling produce perfect blooms, and then to have them destroyed by a fog which has never, in my experience, been equalled even in this smoky district. All my Orchids have suffered, more or less, from the effects of the fogs, and even the Cypripediums have shown signs of damage, but they have stood it best." The spike sent, in its general character, and in its bracts, strongly recalls Lælia anceps, and although the flowers have partially closed up, the tissues and colour are quite perfect, and have the intermediate characters previously pointed out, those of the Lælia parent, however, predominating. Mr. Wrigley's experience is certainly disappointing, but we hope that another season he will be more fortunate. It is curious how general these fogs are. On the very same evening an unusually dense fog fell over the London district, and probably the predisposing cause may be sought in the great and sudden fall of temperature, which seems to have been general, and the effect in smoky districts, alas! is only too well known.

THE HYBRIDIST.

CATTLEYA × VICEROY.—This is a richly-coloured and beautiful hybrid, sent from the collection of Sir James Miller, Bart., Manderston, Duns, N.B., by Mr. Hamilton. It is a seedling obtained from Messrs. F. Sander & Co., St. Albans, its parentage being recorded as C. labiata × C. × Brymeriana—the latter, it will be remembered, being a natural hybrid between C. superba and C. Eldorado. The flower of the novelty is most like C. labiata in general character, having the segments of a light rose-purple shade, and the lip rich purple crimson, which extends right down to the base along the centre, but on the base of the side lobes occurs a pale lilac area, slightly broken up by a few crimson veins. The sepals are rather over 3 inches long, and widely spreading, while the petals, which are nearly $1\frac{3}{4}$ inches broad, spread at an angle of 45 degrees, and the lip is entire, and rather broader than the petals. It is excellent in shape and colour, and a very promising thing. It has been named Cattleya × Viceroy, in honour of Lord Curzon, who is a brother of Lady Miller.

PAPHIOPEDILUM × HELEN.—This is a very charming hybrid, derived from Paphiopedilum bellatulum × P. insigne Chantini, which was exhibited at the R.H.S. meeting on November 26th last, by R. Tunstill, Esq., Monkholme, near Burnley, under the name of Cypripedium × Helen, and received an Award of Merit. The flower most resembles P. bellatulum in general character, and in the short, broad petals, which measure $2\frac{1}{2}$ inches long by over an inch broad, but the influence of P. insigne is strongly marked in the colouring of the dorsal sepal, and in the modified shape generally. The dorsal sepal is heavily spotted with dark purple-brown on a very light ground, and the petals similar, except that the spots are much smaller. The lip is suffused with purple-brown in front, and the staminode is broadly rhomboid, convex, and hairy, with a small tubercle in front, which represents the same organ of P. insigne. It is a decided acquisition to the group.

LÆLIO-CATTLEYA × GROGANIÆ.—A flower of a pretty little hybrid has been sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow, by Mr. W. F. Oliver, who states that it is a cross between Lælia Digbyana and Cattleya Harrisoniana, and that it comes off a small plant now flowering for the first time. The influence of the last-named parent is very strong, especially in the deep yellow corrugated crest, and arrangement of the nerves, so characteristic of this species, and we may add that this colour has suffused itself almost throughout the interior of the lip, with the exception of a narrow, light purple margin which extends right round to the base. Outside, this colour extends much further, but the central portion is

light yellow. The sepals and petals are of a pleasing, soft rose-purple shade, and at present reach an expanse of four inches, the petals being just under an inch broad. It is remarkably different from Lælio-cattleya × Aurora (L. Dayana × C. Loddigesii) which has a very broad, dark purple margin round the lip, but there is a certain resemblance in the lip to L. pumila, and also to L.-c. × Leeana (L. pumila × C. Loddigesii), which suggests a query as to whether L. pumila was not the second parent. Such resemblances are rarely meaningless, and one would have expected to find at least some trace of the very marked keels and the colour of L. Dayana. It is a very interesting novelty, and it may be possible to clear up the doubtful point hereafter.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during January, on the 15th and 29th respectively, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on January 9th and 23rd. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

The November number of Messrs. Cogniaux & Goossens' useful little *Dictionnaire des Orchidées* contains figures of the following species:—Bletia hyacinthina, Bulbophyllum Lobbii var. Nattesiæ, Cattleya violacea, Chysis lævis, C. Limminghei, Cypripedium × Kubele, Grammatophyllum Ellisii, Lælio-cattleya × Canhamiana alba, Lycaste Micheliana (Cogn.), Polystachya pubescens, Schomburgkia Thomsoniana, Trichopilia tortilis, and Vanda × Miss Joachim.

OBITUARY.

Alfred Bleu.—This well-known hybridist passed away about the beginning of December last, after a long illness from heart disease, aged 66 years. A pharmaceutical chemist by profession, he was an enthusiastic horticulturist, and a pioneer of hybridisation in France. His first hybrid was a Caladium, but he soon turned his attention to Orchids, and produced the beautiful Cattleya × calummata in 1881. M. Bohnhof enumerates fourteen others, but some have been added subsequently. He was secretary of the Société de l'Horticulture de France from 1883 till 1892; was created Chevalier of the Legion of Honour in 1886; was present at the Hybridisation Conference in London in 1899; and a Juror of the International Exhibition in Paris in the following year. He was the raiser of the beautiful Miltonia × Bleuana given as a Frontispiece to our second volume.

ORCHID PORTRAITS.

ANGRÆCUM BILOBUM.—*Journ. Hort.*, 1901, xliii., p. 483, with fig.

CATTLEYA × PECKAVIENSIS, Vogel.—*Wien Ill. Gart. Zeit.*, 1901, p. 431, fig. 52.

CATTLEYA × PORTIA VAR. ROTHWELLIÆ.—*Amer. Gard.*, xxii., p. 845, with fig.

CYPRIPEDIUM × HELENA.—*Journ. of Hort.*, 1901, xliii., p. 555, with fig.

CYPRIPEDIUM × MRS. ALFRED FOWLER.—*Gard. Mag.*, 1901, p. 823, with fig.

CYRTOPODIUM PALMIFRONS, Rchb. f. and Warm.—*Bot. Mag.*, t. 7807.

LÆLIA ALBIDA MARIANNÆ.—*Journ. Hort.*, 1901, xliii., pp. 506, 507, with fig.

LÆLIO-CATTLEYA × LEUCASTA.—*Gard. Mag.*, 1901, p. 775, with fig.

MEGACLINIUM LEUCORHACHIS, Rolfe.—*Bot. Mag.*, t. 7811.

MILTONIA VEXILLARIA.—*Garden*, 1901, lix., p. 429, with fig.

PERISTERIA ELATA.—*Garden*, 1901, lix., p. 359, with fig.

SOPHRO-CATTLEYA × NYDIA.—*Journ. Hort.*, 1901, xliii., pp. 530, 531, with fig.

CORRESPONDENCE, &c.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

W. F. O. 1, Paphiopedilum × Leeanum, a fine form with the lower half of the dorsal sepal densely dotted with purple; 2, apparently P. × Eyermanianum, a hybrid between P. Spicerianum and P. barbatum, the leaves should show an obscure tessellation; 3, a hybrid of P. Boxallii, or a variety of it with the ovary less villose than usual (the staminode is missing, and the flower may be not quite normally developed). The Lælio-cattleya is noted on another page.

F. B. Lælia albida, a fairly typical form, but small, probably because the plant is not yet established.

C. C. M. The larger flower seems to be a form of Paphiopedilum × Canhami, and the smaller of P. Harrisianum.

Beta. A large number of varieties of Paphiopedilum × Leeanum have been named, but we do not know how all of them differ, and it seems inadvisable to apply a special name to every seedling that shows a slight variation in the size and number of the spots. We regret that it is so difficult to know what many of them are like, but this seems inevitable under the present system.

Mrs. H. Lælia autumnalis, a fairly typical form.

Hybridist. We have endeavoured to obtain a copy, but without success. But we may be able to deal with the matter in another way.

Received. J. M., R. Y., J. C., J. H., G. G.

Photographs received, with thanks. J. H., R. W. R., C. C. M.

Several notes are unavoidably postponed till next month.

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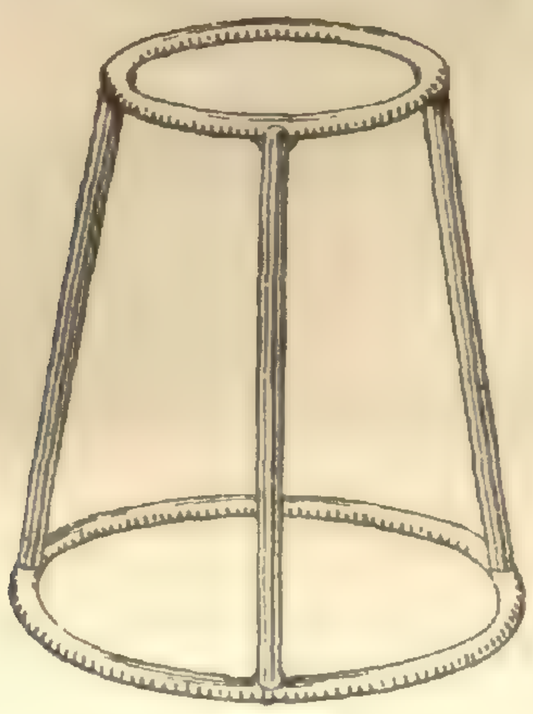

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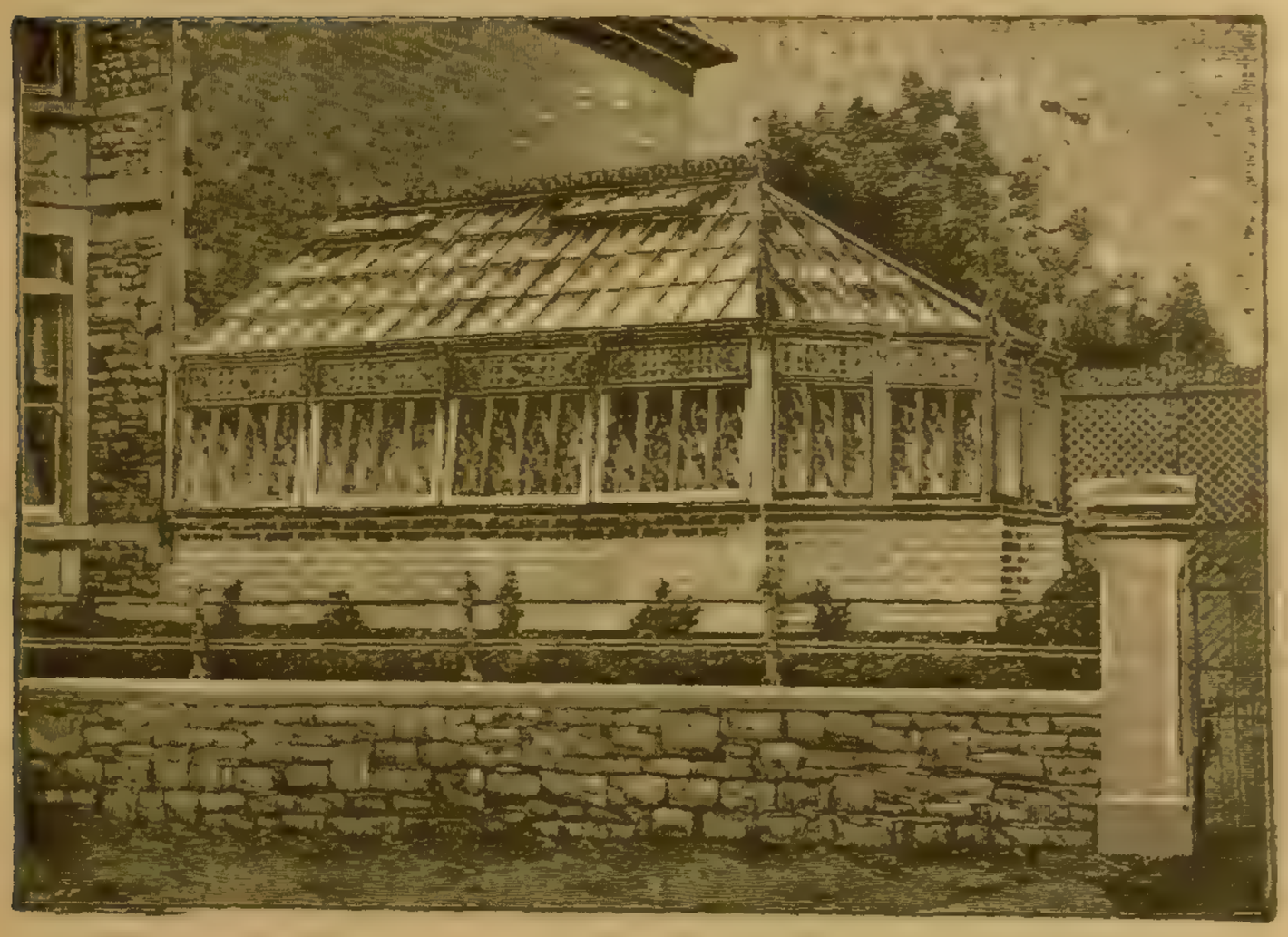

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

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DIES ORCHIDIANI.

I COMMENCED my notes for the present year by discussing the Report of the Commission appointed to examine the system of growing Orchids in leaf-mould, and I suggested that the Commission should visit the establishment of M. Delanghe, where the system had long been practised. Curiously enough, a most interesting report on this system appeared in the *Gardeners' Chronicle* for January 11th (page 26), signed, "L. P. De Langhe-Vervaene, St. Gilles, Brussels," which I may be permitted to summarize.

The author commences by stating that this method of culture was introduced by him twelve years ago, and at first met with but scanty support, and it was only after some time, when proofs of the value of the system were forthcoming, that a few growers, after visiting his houses, followed his example. "So simple a plan of cultivating these plants," he remarks, "did not seem feasible. Instead of weighing so important a question, it was negatived *a priori*, pending fresh developments." Year after year the results were more convincing; but, oddly enough, the system was still disparaged by those whose business it was to instruct Orchid growers. He goes on to say:—"We did not cease to contend that our system of feeding was more natural, and therefore more acceptable, than those formerly pursued, but our explanations of the value of the leaves, and the abundance of nutritive properties that they contained, were unheeded."

In 1890 a Congress was held at Paris with the object of determining the cause of the degeneration of Orchids grown under glass, and it was clearly demonstrated that insufficient nutriment was the cause, and the use of artificial manures was suggested as a remedy. Soon afterwards M. L. Chaure, editor of the *Moniteur d'Horticole*, Paris, hearing of the new method, visited the establishment, and called attention to its utility. After this, many experiments were made, which converted many who were previously averse to the use of leaf-mould, and the system is now largely used in France, and is likely to be adopted in England.

Misconceptions have arisen from the notion that the compost retains too much moisture, or that watering can never or only very rarely be effected, and these must be removed if the system is to be generally adopted.

The author then goes on to discuss the general principles involved. First he deprecates the system of cultivating Orchids under a glass roof as epiphytes. They have constant need of nourishment during the season of growth, but it is not practicable to supply this through the medium of the air, so they must be supplied by frequent waterings enriched with liquid manure, which is hardly easier to accomplish. Thus we must have a compost, and decide of what it shall consist. Fibres at first sight seemed suitable, but formed too compact a mass. Then the finer parts were removed, making the compost too light and liable to dry too quickly, to obviate which sphagnum was added, to retain moisture, without preventing the passage of air. This compost contained little nourishment, as the parts that the plants could assimilate were taken away, hence the dwindling demonstrated at the Congress, the plants having to draw upon the reserve stores contained in the back bulbs.

Leaves from the trees of our woods and forests, after their fall and decomposition, serve perfectly to nourish exotic plants from any locality. "A compost formed of these leaves, when used, as is the case with Orchids, for plants of small size, replaces and even improves upon the soil necessary for their establishment." On this theory is based my plan of cultivating Orchids. Leaves, after their fall, have valuable nutritive properties, and such a mixture can be formed as no other manure can equal, especially for application in cases where the plants grow from seed, and are varied in character. The basis of the compost should be leaves of oak and beech, which are sufficiently durable, and with which other leaves could be mixed, forming what is usually termed leaf-mould. M. Delanghe remarks that he tried to solve the problem by following natural indications, and, from the results, he thinks the culture of Orchids may become general.

The method of use is briefly as follows :—Leaves that are not sufficiently decayed should be sifted out, and if it still seems too compact, a little rough sand should be added to ensure the passage of water. Pots of the usual shape are used, with a single crock over the bottom; and the soil is made firm but not hard, and then covered with a light layer of sphagnum chopped into inch lengths. This addition is not essential, but for the sake of appearance, and because the soil, if exposed, becomes covered with minute growths that prevent the air from penetrating.

The author concludes:—"One question that seems to disturb those new to this method of culture is, how to give water. We cannot enlighten those unfamiliar with this method without entering into long details. Suffice it to say that the amount of water is regulated according to the genus of Orchid, its seasons of vegetation and growth, as well as the condition of each plant. The subject is an important one, and an inexperienced hand may do much mischief. If watering is judiciously managed, the leaf-mould is naturally more apt to dry too quickly than to retain the moisture long enough to do harm."

One exception the author makes with respect to Vandas, and similar things provided with an extraordinary root system, having strong powers of absorption. These may be grown in pure sphagnum, and if carefully treated during the period of growth, the necessary matters can be supplied by watering, though there is always some difficulty in this way of growing them. It is highly interesting to have such details from the originator of the system, and an examination of the collection where the system has been carried on for twelve years would be very instructive. My impression is that it has come to stay.

Two notes on the same page of the *Gardener's Chronicle* for January 11th last (p. 18) open up a very interesting point in nomenclature. Mr. J. O'Brien describes a new hybrid Cattleya as follows:—"Cattleya × Cybele (Gaskelliana × Lueddemanniana). The union of two rather widely separated forms of Cattleya labiata has, in this showy hybrid, brought about pleasing results, even although the new arrival still remains a form of C. labiata." Mr. Hurst also describes a Cattleya × Rothwelliæ, or rather so re-names a hybrid between C. Bowringiana and C. Eldorado, which Mr. Oakes Ames has described as Cattleya Portia var. Rothwelliæ. Mr. Hurst remarks that the argument seems to be that as C. Eldorado has been considered a variety of C. labiata, and as the hybrid between the latter and C. Bowringiana is known as C. × Portia, the corresponding hybrid with C. labiata var. Eldorado is necessarily another variety of C. × Portia. But he also very well points out that "this rather complicates matters, because, according to the same system, C. Warscewiczii would also be considered a variety of C. labiata, and a hybrid between C. Bowringiana and C. Warscewiczii, named C × Wendlandiana, was described in 1894 (*Orch. Rev.*, 1894, p. 144), while C. × Portia was first published in 1897 (*Orch. Rev.*, 1897, p. 375)."

And this line of argument might be carried further. For C. × Portia would then become a variety of C. × Wendlandiana, so would also C. × Mantinii, C. × Ariel, C. × Warnero-Bowringiana, and (as C. × Hardyana is only a variety of C. labiata, like its two parents) C. × Mrs. J. W.

Whiteley. And what untold possibilities have we not, when we come to deal with C. labiata itself? Have we not hybrids between it, and its varieties Dowiana, Mossiæ and Trianæ? Also all sorts of combinations between its varieties Dowiana, Eldorado, Gaskelliana, Lueddemanniana, Mendelii, Mossiæ, Percivaliana, Schrœderæ, Trianæ, Warneri, and Warscewiczii? M. Cogniaux was able to enumerate 474 varieties of C. labiata, without including these hybrid varieties, and some have been added since, so that the prospect is truly appalling! The variety Dowiana alone seems to have been crossed with nearly every other of the varieties mentioned above, and it is no point in the argument that they have not been named as varieties, because, if they are varieties, they ought to have been named as such, just as C. × Cybele ought to have been called C. labiata var. Cybele, if the remark that it "still remains a form of C. labiata" is a fact.

But there is another side to the question, and Mr. Hurst remarks:—"Mr. R. A. Rolfe, in his revision of the genus Cattleya (*Orch. Rev.*, 1895, p. 269), makes both C. Eldorado and C. Warscewiczii distinct species, each having its own set of varieties, and, on the whole, this seems to be the most convenient arrangement." On turning up that paper I find that the question was pretty fully thrashed out, and it was shown that some of the forms that have been universally treated as species are no more distinct than others which are called only varieties. The simple fact is, that the genus Cattleya fell into a state of the greatest possible confusion, and it is fortunate that someone did attempt to place it on an intelligible footing. In practice it has been the custom, even of those who make these forms varieties only, to name hybrids between them as if they were species, and now that it has been shown that they are more than varieties—that each indeed has its own set of varieties let us adopt the rational view. A grower once remarked that botanists might argue till they were black in the face, but they would never make him believe that C. Dowiana was a variety of C. labiata. And with a full knowledge of all the facts, can one wonder at such a remark?

Something is certainly wrong somewhere. Either these forms are distinct species, or they are not, and it has been shown that the old ideas are not in accordance with the facts as we now know them. Why then keep on repeating them when we fail to put them into practice? If these forms are only varieties, let us treat them as such, and name their hybrids in accordance. Let us be consistent, at all events. We do not want to have a plant called one thing, and to be told at the same time that it's something else. With such a system we shall never know where we are, and our system of nomenclature will become even more confused that it is at present, which is saying a great deal.

ARGUS.

ORCHIDS GROWN IN LEAF-MOULD.

My experience of the above subject has been with Odontoglossum crispum, and with good results. I see that there are already different methods of using the leaf-mould. The Belgian Commission state that where they examined collections grown in it all the rough pieces were excluded, but not the fine mould and sand. The latter, I think, being siliceous, is necessary, for two good reasons; to keep the mould sweet, and because Orchid bulbs have silica in their composition. A practical chemist whom I frequently supplied with garden subjects for analyzing found silica in the pseudobulbs, though not largely. [It could only be absorbed in the form of soluble silicates.—Ed.] Belgian growers, it seems, pot deep, and our friend Argus says that Messrs. Charlesworth pot as usual, *i.e.*, with the base of the bulbs level with the top of the pots, and use only the leaves in rough pieces; and with good results.

Having little time to personally water the Orchids here, I decided to try a system as follows:—Two parts each of polypodium-fibre and leaf-mould, and one of sphagnum tops, and pot about one inch below the rim of the pots, surfacing with sphagnum, as of old, but avoiding the usual mounding. The following are the results. Three years ago next May I bought a lot of Odontoglossum crispums in sixty sized pots, with one lead each, and unflowered. They now fill seven and eight inch pots, with from three to eight leads each, and have *not* been divided with the knife. They were repotted with the above material two years since last September, and repotted last November. Those showing flower spikes now have from two to twelve spikes, but the latter I reduce to six, and plenty of the spikes are branched, which is new to *me*. Another lot I bought two years ago last October, when just imported, with two, three, and four bulbs. These are now in five and six inch pots, and are wonderfully fine stuff. When repotting last November I found that the potting material was as fresh as the day it was used, and there were masses of healthy roots. I find here that Odontoglossums do not ripen so freely as further south, but I partly blame this to feeding, which I still practise, using London native guano, by putting it in the rain-water tanks occasionally. A mixed lot of Odontoglossums which were here when I came three years ago were very poor stuff, nearly dead, but now are, in my mixture, striving to overtake the newer lot, and flowering nicely. I am going to try pure leaf-mould as occasion occurs, and will be pleased to report the results. [Please do.—Ed.]

In potting Cattleyas all have erred by potting too high above the rim of the pots, as the roots grew over or outside the pots, and the changes o temperature of the pots, partly from watering, *killed* the outer tissues of the roots. At least I think so, as any roots which hang clear of the pot keep

alive and healthy. What say other readers? Now this leaf-mould system will have all the roots inside, and covered up I suppose.

May I ask, has any one tried Jarrydal wood baskets? I hear Jarrydal is indestructible, even in running streams.

JAS. HAMILTON.

Duns, N.B.

NOMENCLATURE OF HYBRIDS.

WHAT will happen, in a few years, in the nomenclature of Orchids? It seems to me that it will be very difficult to classify the hybrids, even from the same seed pod, and that it will be with them as it is now with foliage Begonias, amongst which the varieties are almost as numerous as the seedlings raised. It seems that the further we get from the types, the more varieties are found in seedlings from the same pod.

In the primary hybrids, those between two distinct species, all the plants have more or less common characters, which enable us to recognize them; but secondary hybrids are more unlike, and when we come to those of the third or fourth degree—hybrids between hybrids—it is often difficult, or even impossible, to believe that the young plants came from the same seed pod. This is the case with the flowers sent herewith.

These came from a cross between Paphiopedilum × Leeanum (Spicerianum × insigne) and P. × Sallieri (insigne × villosum), and it is very curious to observe the difference between these flowers, some of them being green, others yellow; some having numerous spots, black, brown, or purple, on the dorsal sepal, others having this sepal pure white with a purple line, or green or yellow margined with white, without any spots.

We flowered about fifty or sixty plants of these seedlings, and I can say we could not find two varieties alike; even the form varies considerably, some approaching P. insigne, villosum or × Leeanum, and others presenting much analogy with P. × Lathamianum (Spicerianum × villosum).

All who have seen these plants in flower were astonished at the great difference between the varieties. Twelve or fifteen were really beautiful, and worth a distinct name, and although it is impossible to give them all the same name, I think it rather awkward to give ten, fifteen, or twenty names to the same number of plants which were all raised from the same cross!!!

For the present, I have named all these plants P. × variabile, because of the numerous forms found amongst them. But all seedlings cannot be called "variabile," and this is why I ask, What will happen with the nomenclature of hybrid Orchids? I have read with much interest your different considerations of that subject in the ORCHID REVIEW, and this is the reason

why I send you my modest opinion. I think we shall be obliged to keep the Latinized names for the primary hybrids, and to name others without reference to the parentage.

L. CAPPE.

Secretary, Orchid Committee, S. N. H., France.

Twelve flowers are sent, forming a very remarkable series. Two of them would almost pass for erratic forms of P. insigne, and four others for P. × Sallieri, as they have the broader villosum petals. But even in these the modified characters can be traced. For example one has a median purple band on the dorsal sepal, and three have the white area considerably enlarged, as in Spicerianum, though in the other three the characters of the latter species are not easily traced.

In the other six the dorsal sepal is not spotted. One would almost pass for P. × Lathamianum, and two others have a similar general character, with the addition of a little purple suffusion about the centre, on either side of the purple band. A fourth has this purple area more extended without the purple band, and the petals and lip much suffused with brown. And the two last would almost pass for those curious forms of P. insigne in which the spots have disappeared in a light brown suffusion, except for the broader petals. M. Cappe remarks that he sold one last week with the lip and petals lemon yellow and the dorsal sepal pure white, with only a pale purple line down the middle; and another with a very broad white dorsal sepal bearing numerous purple spots.

An analysis of the parentage shows them to have been derived from P. insigne, $\frac{1}{2}$, P. villosum, $\frac{1}{4}$, and P. Spicerianum, $\frac{1}{4}$, and it is curious to note that the hybrid between P. insigne and P. × Lathamianum which has been recorded under the name of Garret A. Hobart, has precisely the same proportions. The same must be said of those between P. × nitens, called nitens-Leeanum, Mrs. C. Maynard, and Samuel Gratrix. But there is an earlier hybrid between P. × Sallieri and P. × Leeanum, namely P. × Charlesianum, whose history was given at page 359 of our sixth volume, which dates back to 1894 (when it was exhibited at the Brussels Orchidéene) and of which a flower was sent to us in 1899 by Messrs. Cappe (*O. R.*, vii., p. 66).

The nomenclature question is sufficiently perplexing without this complication, but P. × Charlesianum is a much older name than P. × variabile, and we should apply it to this polymorphic hybrid. The common name indicates their common origin. For any of the forms which it is desirable to distinguish further we should add a varietal name. The prospect of ten to twenty distinct names for the same cross, multiplied by the number of crosses which it is possible to raise, is too appalling to think

about—indeed the confusion is too great already. We quite endorse M. Cappe's remarks that some of these forms are really beautiful, and we recognize the rapid improvement which is taking place in this and other groups, but this progress also warns us to be careful how we name our plants. We cannot possibly grow all the numerous forms which are being raised. The poorer forms will gradually be replaced by improved varieties, and the day may come when some of those prized now may be chiefly of antiquarian interest. Even in the same batch of seedlings some forms are not worth keeping, but those which are kept should be named in such a way that their relationship to each other is not lost.

A parallel case is found in P. × aureum (Spicerianum × nitens var.), and the difference between the five forms figured in the *Dictionnaire des Orchidées* is remarkable, and may serve as a precedent for the interesting case now under discussion.

APOSTASIA WALLICHII.

A FIGURE of this remarkable Orchid is given in the ninth volume of the *Annals of the Royal Botanic Garden, Calcutta*, of which the first part has just appeared. Sir George King remarks:—

"This plant was excluded by Mr. Pantling and myself from the eighth volume of these Annals (*The Orchids of the Sikkim Himalaya*) on the ground that the genus *Apostasia* is doubtfully Orchidaceous. The regular perianth, the free, unmodified anthers, style, and stigma, the free pollen, trilocular ovary, and hard ellipsoidal seeds characteristic of the genus contrast strongly with the same organs in the conventional Orchidaceous flower. The balance of authority is, however, undoubtedly in favour of the view that both *Apostasia* and the allied genus *Neuwiedia* represent aberrant, or, rather, very ancient, forms of *Orchideæ*. According to the general view the ancestral characters of an Orchid are in these two genera little, if at all, masked by the later adaptations which we are accustomed to associate with the flowers of that natural order. A *résumé* of the arguments in favour of this view will be found in Mr. Allen Rolfe's excellent papers in vol. xxv. of the *Journal of the Linnean Society*, and in vol. iv. of the *Orchid Review*. In the meantime, the figure originally prepared for the volume on the *Orchids of Sikkim* is here given, accompanied by a description in which are used none of the terms peculiar to Orchidologists, in the hope that they may be of some use to botanists who have opportunities of examining living specimens of *Apostasia*." The part is entitled, "A Second Century of new and rare Indian plants," and this is the only Orchid it contains—for there can be no doubt that it is a primitive member of this remarkable family.

PAPHIOPEDILUM × MINOS VAR. YOUNGII.

THE annexed figure represents a very fine variety of Paphiopedilum × Minos, which was raised in the collection of Reginald Young, Esq., Sefton Park, Liverpool (gr. Mr. Poyntz), from P. Spicerianum magnificum ♀ and P. × Arthurianum ♂. The seeds were sown in 1893, and the first flower appeared in December, 1899, when it was exhibited at a meeting of the R.H.S., and was noted as a particularly fine form of C. × Minos

FIG. 4. PAPHIOPEDILUM × MINOS VAR. YOUNGII.

called Young's variety (*Orch. Rev.*, viii., p. 29). Half the plant has now been acquired by Captain Law-Schofield, New-Hall-Hey, Rawtenstall, Manchester, from whom we have received the photograph here reproduced and a living flower. The dorsal sepal of the latter measures exactly $2\frac{7}{8}$ inches across, so that the figure is a shade under natural size. The ground colour of the dorsal sepal is white, with the basal third light green, the latter being veined and spotted with purple brown, while between this

and the broad white margin is a zone which is densely spotted with light purple. The petals are light green at the base, spotted on the nerves with purple brown, which latter colour from the middle to the apex becomes lighter and more suffused, while the gracefully undulate margin is light green. The lip is light brown in front, and the staminode yellowish white with some green veining and minute brown hairs. All the other characters are well shown in the photograph. It should, however, be added that the spots on the dorsal sepal are more copious than shown in the photograph, which is due to the fact that light shades of purple come out nearly white, owing to their high actinic property. The white area on the front of the lip, and base of the dorsal sepal, is due to reflected light from the polished surface. It has been figured in the *Dictionnaire Iconographique des Orchidées* as Cypripedium × Minos var. Youngii. The original form was raised by Messrs. Veitch, and flowered in 1893, when it received an Award of Merit, and we must congratulate Mr. Young on having obtained such an improved form. It is highly prized by Mr. Young and Captain Law-Schofield, and has been greatly admired by others who have seen it.

SIKKIM DENDROBIUMS.

In the preface to *The Orchids of the Sikkim Himalaya*, when speaking of the rule made only to include drawings of species of which living plants had been observed, Sir George King remarked:—"Several species which have large, handsome flowers (*e.g.*, Dendrobium primulinum, D. crystallinum, and D. Dalhousianum) recorded in the *Flora of British India* as occurring in Sikkim are believed now (probably on account of the extensive clearings for cultivation made within recent years) to be extinct. Such species have also been omitted from the book." It now appears that the reported occurrence of all three species in Sikkim is due to misidentification. When Lindley described D. primulinum (*Gard. Chron.*, 1858, p. 400) he remarked:—"A good many plants have been introduced from India, probably from Sikkim, for we find it among Dr. Hooker's dried plants gathered in the hot valleys of that country." This specimen, with some others from the same locality was referred by Sir J. D. Hooker to the Burmese D. crystallinum, Rchb. f., but on analysis I find that they belong to D. Pierardi, Roxb., a widely-diffused and variable plant, so that both D. primulinum and D. crystallinum have to be excluded. In a similar way the supposed Sikkim piece of D. Dalhousianum, Wall., proves to be D. Hookerianum, Lindl, a well-known Sikkim plant. The fringed lip was only apparent after the flower had been soaked and spread out. It is satisfactory to find that their absence is not due to the cause assigned in the above note.

R. A. Rolfe.

CATTLEYA × ROTHWELLIÆ.

CATTLEYA × ROTHWELLIÆ is a pretty little hybrid which is described and figured by Mr. Oakes Ames in a recent issue of *American Gardening* (vol. xxii., p. 845, fig. 174) under the name of Cattleya × Portia var. Rothwelliæ, and its parentage is given as C. labiata var. Eldorado × C. Bowringiana. But C. Eldorado is certainly distinct from C. labiata, and the two give quite distinct hybrids, so that in conformity with the adopted system we abbreviate the name of the present one to C. × Rothwelliæ. It is described as follows :—" This is an unusually distinct form, although, as is so often the case with the hybrid progeny of C. Bowringiana, the flowers are small. The distinguishing point is the marking of the labellum, which shows clearly the influence of Cattleya Eldorado, the yellow throat and well defined band of purple-red on the apical part being characteristic. This hybrid was raised in the collection of J. E. Rothwell, Esq., of Brookline, Massachusetts. Plant intermediate, and in general similar to other hybrids obtained from C. Bowringiana ; sepals oblong ; petals broadly ovate ; lip with a contracted apical lobe ; sepals, petals, and lip pale purple-red, the apical lobe of the latter, and the margins of the side lobes deep rich purple red ; throat of a rich yellow ; flowers larger than in Cattleya Bowringiana, about $4\frac{1}{4}$ inches across." The inflorescence is four-flowered, and the illustration, which is prepared from a photograph, shows the intermediate character, and the broad purple band round the margin of the lip. It is a very interesting addition to the group.

The above was crowded out of our January issue owing to want of space, and afterwards came to hand the issue of *American Gardening* for December 28th, in which the following note appears (p. 879), from the pen of Mr. Rothwell, under the heading of Cattleya Rothwelliæ :—" This was raised in my houses by crossing a good variety of C. Bowringiana with the pollen of C. Eldorado. The cross was made in 1896, and seed sown in March 1897. Only two plants were raised, and the first one bloomed in October 1901. The plant is a strong grower, with bulbs much resembling Bowringiana. The flowers were four in number, and are after the general appearance of Bowringiana, although much larger. The throat, however, has the colouring of Eldorado. The flowers are quite fragrant, and last in perfection from five to six weeks, quite double the length of the seed parent."

In the *Gardeners' Chronicle* for January 11th last (p. 18), Mr. C. C. Hurst also adopts the same name, writing as follows:—The publication of this hybrid under the name of C. × Portia raised a rather interesting question. Mr. Oakes Ames, apparently following Veitch's *Manual*, makes C. Eldorado a variety of C. labiata, and as the hybrid between C. Bowringiana and the

latter is known as C. × Portia, he therefore applies that name in this case. But this rather complicates matters, because according to the same system C. Warscewiczii would also be considered a variety of C. labiata, and a hybrid between C. Bowringiana and C. Warscewiczii, named C. × Wendlandiana, was described in 1894 (*Orch. Rev.*, 1894, p. 144), while C. × Portia was first published in 1897 (*Orch. Rev.*, 1897, p. 375). Mr. R. A. Rolfe, in his Revision of the genus Cattleya (*Orch. Rev.*, 1895, p. 269), makes both C. Eldorado and C. Warscewiczii distinct species, each having its own set of varieties, and on the whole this seems to be the most convenient arrangement. In accordance with this, therefore, I venture to amend the name of this hybrid, as above."

CATTLEYA LODDIGESII AND C. HARRISONIANA.

ONCE more we have evidence of the curious way the names of these two Cattleyas have been transposed in gardens, and a request to point out the differences between them. C. Loddigesii was originally figured and described under the name of Epidendrum violaceum, in 1819 (*Lodd. Bot. Cab.*, t. 337), but its original introduction was due to Mr. Woodforde, who in 1810 sent it to Mr. Shepherd, of the Liverpool Botanic Gardens, where it flowered in the following year. C. Harrisoniana was introduced by Mr. Harrison, of Liverpool, about the year 1836, and was named by Mr. Bateman (*Lindl. Bot. Reg.*, sub. t. 1919), being afterwards figured by Paxton as C. Harrisoniæ (*Paxt. Mag. Bot.* iv., p. 247, with plate). It has some other names, but these need not be discussed here. The most obvious and striking difference between the two is that in C. Harrisoniana the crest is strongly corrugated and deep yellow in colour, while in C. Loddigesii it is quite smooth and much paler in colour. The former has also narrower and darker petals, and there are some other differences which are obvious enough when the two are compared together. The confusion is unfortunate, because it also extends to a few of their hybrids, though it would be difficult to specify which without an opportunity of examining them in detail.

LÆLIO-CATTLEYA × CAPPEI SUPERBA.

A REMARKABLY fine flower of Lælio-cattleya × Cappei superba (L. cinnabarina × C. Warscewiczii) is sent by MM. Cappe et fils, Vesinet, France, having an expanse of six inches across the petals. MM. Cappe remark that it is one of the best forms from the batch of seedlings, and that the inflorescence bears seven flowers, though two of last year's pseudobulbs have borne seeds. Its deep yellow sepals and petals, and rich crimson lip are most effective.

EXPERIMENTS IN PLANT HYBRIDISATION.

YOUR interesting review of Mendel's law of the separation of characters in crosses (p. 11), prompts me to send you a note on one special feature of Mendel's experiments upon which the whole question depends. The central principle of Mendel's law is that it deals solely with a single character at a time: it consequently ignores the individual plant which is made up of a large number of single characters. Given the law for a single character, the determination of the individual is simply a matter of calculation according to the calculus of chance. A practical illustration will perhaps show this important point more clearly:—

I suppose it would be a desirable thing to be able to raise a number of plants of Paphiopedilum Fairrieanum true from seed, and your reviewer suggests that the hybrids of P. Fairrieanum might be self-fertilized to gain this object, in accordance with Mendel's law. But this would not be so easy as it seems. According to Mendel's law, by raising four seedling plants from, *e.g.*, P. × Arthurianum fertilized with its own pollen, one ought, *on the average*, to raise one plant bearing any single character, *e.g.*, the recurved petals, of P. Fairrieanum. Bnt this would not be sufficient for the practical hybridist: he would want to raise P. Fairrieanum true in its many characters, both in form and colour. To do this, *e.g.*, in sixteen conspicuous characters (which would probably be sufficient for all practical purposes), the hybridist would have to raise, *on the average*, no less than 510 plants before he got a "Simon Pure." Of course one might get it true the first time, but the chances would be 510 to 1 against it. (In parenthesis, I might say that judging from my own experience with other species, one would be likely to get the same result much quicker by raising ten plants or less of, say, P. × Arthurianum crossed with P. Fairrieanum, if pollen of the latter can still be obtained). Hence one sees the absolute necessity of testing Mendel's law by single characters only, and not by an individual made up of many characters. This probably explains the apparent intermediate state of many self-fertilized hybrids, some of the characters being inherited from one ancestral species, some from the other, and others again blended between the two. This is in strict accordance with Mendel's formula $A + 2Aa + a$ where A and *a* respectively represent the character in the two ancestral species.

I trust that our hybridists will act upon the good advice of the reviewer and fertilize any easily raised primary hybrid between two distinct species, that may be in flower, with its own pollen. For my own part, I would be very pleased to receive a flower of each of the seedlings raised therefrom for analysis. We should then be able to test Mendel's law in a practical way.

Burbage Lodge, Hinckley. C. C. HURST.

CALENDAR OF OPERATONS FOR FEBRUARY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperatures given in last month's Calendar will suffice for the present month, but in regulating these one must be guided by the external temperature, for at no time of the year is greater care needed. Ventilate on all favourable occasions by means of the bottom ventilators, especially in the cool departments. A little bottom air is always beneficial, and should not be taken off, unless cold winds or frosts prevail, but here again it is necesary to point out that one must be guided by the structures he has to contend with; the aim must be to keep the atmosphere pure and healthy, without causing unnecessary cold draughts.

WATERING.—The application of water to Orchids, is always an important item in the successful culture of these plants, and must be done with intelligence, or disaster will eventually be the result. During the present month those that are still resting require less than those in active growth, and some difference must be made between those that have pseudobulbs and those possessing none; very little water will be needed, so long as their leaves and pseudobulbs remain plump. It is here that the intelligence of the grower is required, in applying water at the right time, in order to avoid any harm being done by the vegetative organs unduly shrivelling.

SHADING.—With the lengthening days and increased sunlight, it will be necessary to have all blinds fixed ready for use by the end of the month. The lath roller blinds are preferable for such Orchids as Cattleyas, Dendrobiums, Lælias, Miltonias, and Oncidiums, whilst tiffany made of a thick material, will afford ample protection in summer, for Vandas, Aërides, and Phalænopses. Those that remain permanent on the roof the whole year, will be found useful in severe weather, as these may be let down at night, and by this means a great saving in artificial heat is effected, besides more wholesome conditions being secured internally. In all cases, blinds should be kept clear of the glass, by means of rods, fixed six inches above it. This allows a free passage of air to circulate over the roof; the atmosphere will thus be kept much more genial than it would otherwise be, were they allowed to lie on the glass.

LEAF-MOULD.—Doubtless this compost will be largely used during the present year in the repotting of Orchids, and I think the results already obtained will justify a full use for such Orchids as Odontoglossums, Oncidiums, Miltonias, Masdevallias, Cypripediums, Cattleyas, and Lælias. The leaves of oak and beech, which were collected in the autumn, will be quite matured now, providing they were stored in a suitable place. In preparing these for use, they should be rubbed through a half-inch sieve, to break them up a bit, adding a small quantity of peat fibre siftings, with a

similar quantity of chopped sphagnum, and a little silver sand, after which the materials should be thoroughly mixed together. If properly prepared, it should, when handled, be fairly moist to the touch. In potting, select a pot of suitable size, place a few crocks, or, if preferred, bracken root, in the bottom ; over this a layer of moss, then insert your plant, carefully keeping its base on a level with the rim, proceeding to work the compost among the roots, pressing moderately firm, until within half an inch from the top, this remaining space being filled up with finely chopped moss. The latter gives the plant a neat appearance, besides preventing excessive evaporation. A light watering should be given on removing the plants to their growing quarters. All plants in this compost should be exposed to stronger light for growth is apt to become sappy if shaded too heavily. Light surface waterings with a fine rose, and syringing amongst the pots, and overhead, in summer, will suffice to keep the material in good condition.

DENDROBIUMS.—Many of the deciduous species and hybrids have their flower buds well advanced, and may now be placed in a little more heat. They should receive more warmth and moisture, as soon as the flower buds begin to separate from each other. As these pass out of flower, growth will be prominent, and any that require repotting may at once be done, using small receptacles where this can be done, for Dendrobiums dislike any excess of material about their roots. Plenty of crocks should be used for drainage, for a large quantity of water is required during the growing season. The compost should consist of one part good fibrous peat, and two parts of chopped sphagnum moss, with a quantity of finely broken crocks, or coarse sand added. The plants should be slightly elevated above the rim, and secured to neat sticks until the roots get a good hold of the compost. Apply tepid rain water, and during fine weather the plants will greatly benefit by a slight syringing overhead once or twice a day.

ODONTOGLOSSUMS.—Probably some of these had to be left over from the autumn potting, and the present is a suitable time for them to be done, and will afford a favourable opportunity to those who have not yet given Odontoglossums a trial in leaf-soil. The same remark applies to Masdevallias, for these require a liberal treatment at all seasons, owing to their being more or less in active growth. I consider that they always grow more satisfactorily when restricted to small receptacles, and certainly present a better appearance. Pots are undoubtedly the best for the strong growing kinds, whilst the dwarfer species and varieties may be given pans or baskets. The temperature should not fall below 50°, and the plants should never be allowed to become dry for any length of time. Those of the Chimæra section have just now so many young leaves, that it becomes necessary to examine these closely for red spider, for if once this pest be allowed to become established the plants will soon be disfigured. They should be

sponged with tepid water at least once a week. This will act as a preventative, and, if necessary, light vapourings with XL All may also be used.

NOTES ON RECENT RESEARCH.

In the Journal of the Royal Horticultural Society for August last we notice an innovation which is likely to be very useful. Under the title of "Notes on recent research, and short abstracts from current periodical literature, British and Foreign, affecting Horticulture and Horticultural Science," the Society hopes in future to give in each issue an abstract or short digest of all current Horticultural and Botanical periodical literature, at home and abroad. In this first issue we find a list of Journals, Bulletins, and Reports from which the abstracts are to be made, their abbreviated titles, and also a list of thirty-two contributors who have undertaken to furnish these abstracts. By glancing through the sixty-odd pages devoted to the subject one is able to get a very useful idea of what may be termed the drift of current topics, and should one want to pursue a given subject further one knows where to turn for the original information. The notes are alphabetically arranged, and we notice over thirty short references to Orchids, some being references to figures. With such a number of contributors it is naturally difficult to secure uniformity of treatment, but there is room for improvement in this respect. For example, we observe a note on a new Phaius, in which H. J. C. is said to discuss in a general way the system of Orchid nomenclature, and in this particular case he resents "the action of the botanist in altering names that have become established in gardens." We also find a notice of a figure. But the original article in these pages, which drew forth the comment is not even mentioned, nor yet the figure, though another figure is cited. And yet the ORCHID REVIEW is cited among the list of Journals to be summarized.

In the December number, however, amends are made for this omission for nearly half the notes on Orchids are made with reference to articles in our own pages. And we find a note by H. J. C.:—"Phaius tuberculosus. By R. A. Rolfe (*Orch. Rev.*, p. 41, Feb., 1901).—The distinction between the species which has been been grown for so many years in gardens as Phaius tuberculosus (now transferred to P. simulans) and the original variety described by M. Thouars [is pointed out]." Second thoughts are sometimes best. It was never quite clear why anyone should object to a blunder being pointed out, even if the discovery led to a little temporary inconvenience. To return to the general subject, we congratulate the Society upon this interesting addition to its Journal, and we hope to see it continued. To the contributors of the abstracts thanks should be given, for such work entails a considerable amount of labour.

ODONTOGLOSSUM HOUSE AT USK.

LAST month we gave an account of the interesting Orchid collection of Mr. R. W. Rickards, at The Priory, Usk, and the cultural methods adopted

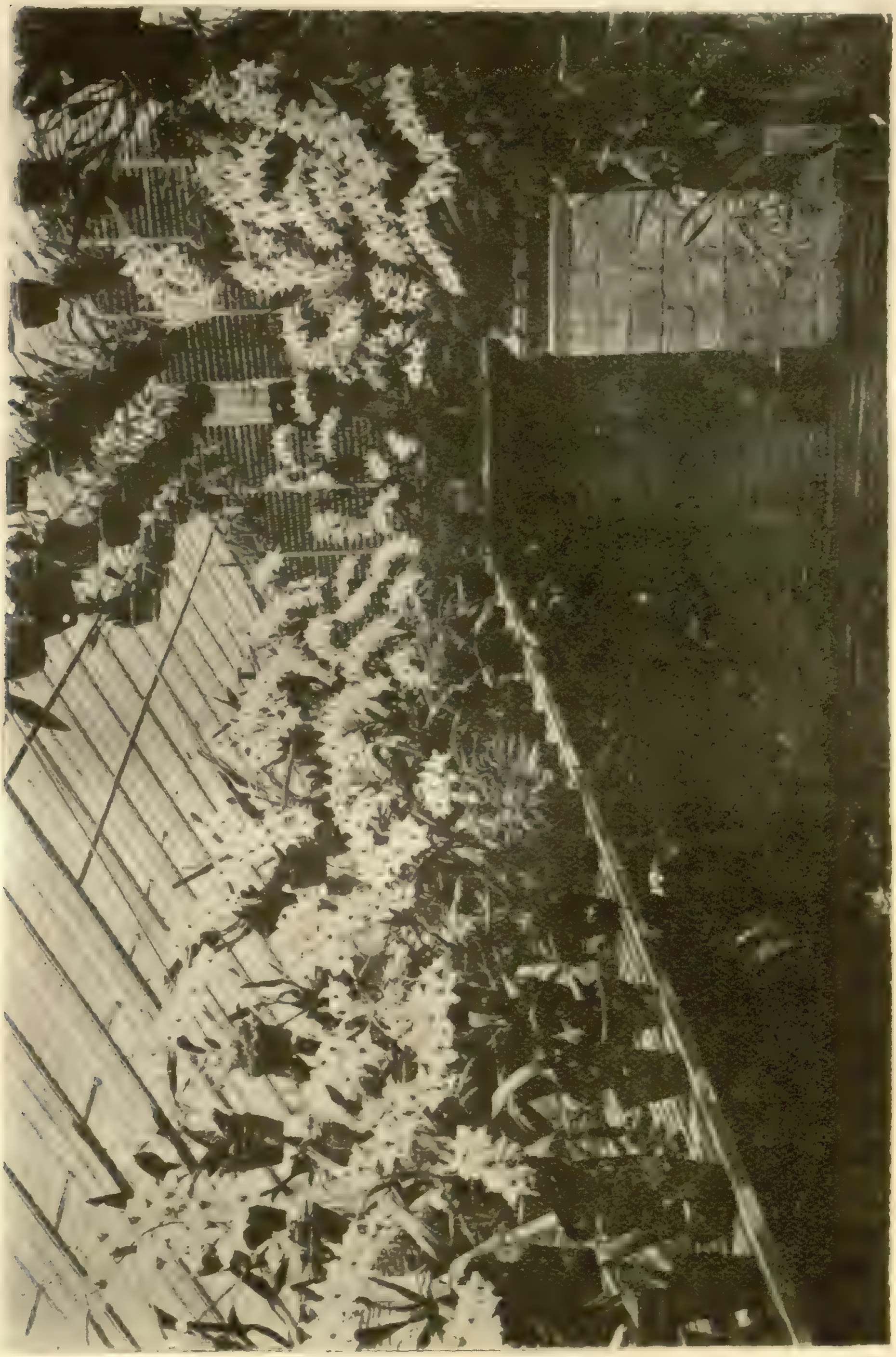

FIG. 5. ODONTOGLOSSUM HOUSE AT USK.

(p. 4), and now we are able to show some of the results. The annexed illustration represents the Odontoglossum House alluded to, reproduced

from a photograph taken in the month of May, and it bears eloquent testimony to the soundness of the treatment adopted. When Odontoglossums grow and flower in this way it may be taken for granted that the treatment is correct. There is little to add to what has already been said, but it will be observed that Mr. Rickards has adopted the lath roller blinds which have proved so valuable for shading Orchids, besides having a very neat appearance. They were made by Messrs. Walters & Co. It will also be noticed that some of the plants are elevated on iron stands, which Mr. Rickards finds very useful. The house forms a most effective picture, and we may congratulate Mr. Rickards on his success.

SOCIETIES.

Royal Horticultural.

A MEETING was held at the Drill Hall, Buckingham Gate, Westminster, on January 14th, when there was a very fine display of Orchids.

Baron Sir H. Schröder, The Dell, Englefield Green (gr. Mr. Ballantine), received a Silver Flora Medal for a fine group of cut spikes, containing Cypripedium insigne Sanderæ, C. i. Sanderianum, C × Leeanum giganteum, C. × L. princeps, C. × Morganiæ, C. × Deedmanianum, C. × Actæus langleyense, Odontoglossum prionopetalum, O. × excellens luteolum, O. × crispo-Harryanum, O. × Denisonæ Princess Christian, O. × D. Godefroyanum, O. crispum nobilius, varieties of L. anceps, &c. A First-class Certificate was awarded to Odontoglossum × Wattianum, Hardy's variety a remarkable plant, which is noted on page 62.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed Odontoglossum × Leeanum Crawshayanum, and some fine cut spikes of Lælia anceps varieties, of which L. a. Chamberlainiana, a remarkably fine rose-coloured variety, received a First-class Certificate, and L. a. Hilliana rosefieldensis, white with a slight blush tint, an Award of Merit.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. H. A. Chapman), showed a fine group of Cypripediums, including C. × Milo superbum (insigne Chantini × œnanthum superbum) C. × Hera punctatissimum, C. × Charles Richman superbum, and C. × Woden (superbiens × Leeanum). A First-class Certificate was given to Cypripedium × Leander Cambridge Lodge variety (Leeanum × villosum), a very handsome form, and a Botanical Certificate to Ornithidium Sophronitis.

D. O. Drewett, Esq., Riding-Mill-on-Tyne, received a First-class Certificate for Cypripedium × Miss Fanny Wilson (Sanderianum × Argus), a handsome hybrid, most resembling C. Sanderianum in general character, but with the petals broader, 6 inches long, and spotted with purple.

F. W. Wellesley, Esq. Westfield, near Woking (gr. Mr. Gilbert), was

awarded a First-class Certificate for Cypripedium × Mrs. W. Mostyn (? Calypso × Leeanum var.), a fine hybrid, fairly intermediate between its supposed parents. Two forms of C. insigne were also sent.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), received an Award of Merit for Odontoglossum × Duvivierianum burfordiense, a pretty natural hybrid between O. apterum and O. cordatum (see note on p. 59). A Botanical Certificate was also given to a plant of Gomeza Barkeri. under the name of G. planifolia.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), exhibited Cypripedium × Stevensii (Calypso Oakwood var. × Albert Hye), a large and handsome hybrid, which received an Award of Merit. The upper sepal was white, marked with purple at the base, while the petals and lip were greenish yellow, also tinged with purple.

W. Shuter, Esq., Belsize Grove, Hampstead (gr. Mr. Armstrong), was awarded a Silver Banksian Medal for a group of finely-grown plants of Cypripedium insigne, together with Saccolabium giganteum and Angræcum eburneum.

H. F. Simonds, Esq., Beckenham (gr. Mr. Day), showed a form of Cypripedium insigne having the brown colouring in the upper petal suffused instead of aggregated into spots.

A. Sutton, Esq., Bucklebury, Woolhampton (gr. Mr. Wright), showed Cypripedium × Mrs. A. W. Sutton (Chamberlainianum × niveum), and C. × Jessie Wright (Lathamianum × Chamberlainianum).

Messrs. H. Low & Co., Bush Hill Park, received a First-class Certificate for Cattleya Trianæ alba Mrs. Edward Sondheim, a large and very handsome form.

Messrs. J. Veitch & Sons, Chelsea, staged a good group, containing Cypripedium × Leander rubrum, Lælia × Icarus (cinnabarina × flava), L. × Mrs. Gratrix, L. × Clio (cinnabarina × glauca), Lælio-cattleya × Remula (L. tenebrosa × C. Aclandiæ), L.-c. × Epicasta, and others. An Award of Merit was given to Lælio-cattleya × Orpheus (L. glauca × C. Trianæ alba), a fine hybrid, fairly intermediate in character. The sepals are white, slightly tinged with pink, and the petals and lip white, the latter having a sulphur-yellow disc.

Messrs. B. S. Williams & Son, Upper Holloway, showed a fine group, containing Cypripedium × rubrum, C. × Harrisianum, C. × Williamsii, C. insigne punctatum violaceum, C. × Leeanum superbum, C. × Sallieri aureum, C. × Dauthieri marmoratum, C. × D. striatum, C. × nitens superbum, Calanthe × bella, C. × Veitchii alba, Lælia anceps Hilliana, and some good forms of Lycaste Skinneri. A Silver Flora Medal was awarded.

M. Fl. Claes, 63, Rue des Champs, Brussels, showed Odontoglossum ×

loochristiense, O. × Adrianæ Romulus, O. crispum, and Oncidum cucullatum Claes' variety, having the lip almost white, spotted with rose.

At the meeting held on January 28th there was again a very fine display, and ten awards were made, exclusive of medals.

Sir F. Wigan, Clare Lawn, East Sheen (gr. Mr. Young), staged a most beautiful group, which gained a Silver Flora Medal. It contained a number of well-flowered Phalænopses, particularly of P. Schilleriana, together with its chaste variety vestalis, and good examples of P. amabilis, P. Aphrodite, and P. × casta. Some of these have been in the collection for upwards of fifteen years. There were good examples of Cattleya × porphyrophlebia, Odontoglossum × loochristiense, two good O. × crispo-Harryanum, a fine Miltonia × Bleuana, Lælia anceps Williamsii, L. a. Hilliana, L. a. Sanderiana bearing a six-flowered spike, Trichopilia marginata, Dendrobium × Wiganiæ, Lælia pumila præstans, &c. An Award of Merit was given to a beautiful example of Lælio-cattleya × Cappei with three spikes.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), also received a Silver Flora Medal for an excellent group, containing some fine varieties of Lælia anceps, Calanthes, and hybrid Dendrobiums, together with some fine examples of Zygopetalum intermedium, Odontoglossum crispum and O. × Andersonianum. The Calanthes consisted of well-flowered examples of C. × Bryan and C. × William Murray, and noteworthy among the remainder were Lælia anceps Stella, L. a. Schrœderiana, L. a. Sanderiana, and some good coloured forms of the species, Dendrobium nobile nobilius, D. n. Amesiæ, D. × Curtisii, D. × Ainsworthii, D. × A. splendidissimum, D. × Juno, D. × Cybele giganteum, D. × Rainbow, D. × Owenianum, D. × burfordiense, &c.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Lælia × Nemesis (L. superbiens × anceps) a very interesting hybrid, most resembling the former in general character, L. anceps Hollidayana, Odontoglossum × Andersonianum Jupiter, and two others which gained awards namely, Lælia anceps Hollidayana Crawshayana (First-class Certificate) and Odontoglossum Pescatorei rosefieldense, a fine specimen bearing a branched inflorescence of thirty-six purple-spotted flowers (Cultural Commendation).

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Murray), received a First-class Certificate for Cypripedium × Venus Oakwood variety (C. niveum × insigne Sanderæ), a distinct and most beautiful hybrid. The dorsal sepal is white, with a yellowish suffusion over the lower half, and some purple spots: the petals cream-coloured, undulate, and evenly dotted with purple, and the lip and staminode light yellow. It is a decided acquisition to the group.

J. Gurney Fowler, Esq., S. Woodford (gr. Mr. Davis), received Awards of Merit for Cypripedium insigne Fowlerianum, a dark, well spotted form, and Dendrobium Wardianum Fowlerianum, a very curious form, in which the lateral sepals have each a yellow blotch with some dark purple markings at their inner angles near the base, thus becoming lip-like in character.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Cypripedium × Hera superbum, C. × nitens var. Celeus (insigne Chantini × villosum), a very fine variety, C. × Dr. Conway (exul × callosum), an emerald green flower, with some pale rose on the dorsal sepal inside the white margin, and a few chocolate spots on the base and also on the petals; and C. × rubescens Ranjitsinghi (œnanthum superbum × Boxallii), a handsome form which received an Award of Merit. The dorsal sepal was blackish crimson, bordered with white, and the petals and lip Indian yellow tinged with brown.

A. Seth Smith, Esq,, Silvermere, Cobham, received a Cultural Commendation for a noble specimen of Angræcum sesquipedale bearing ten flowers.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed a finely spotted form of Odontoglossum × loochristiense, O. × crispo-Harryanum, and O. pardinum, the latter having yellow flowers spotted with brown, and the segments narrow and undulate. It received a Botanical Certificate.

Frau Ida Brandt, Zurich (gr. Mr. Schlecht), sent Lycaste × Lucianiana, a pretty natural hybrid between L. Skinneri and L. lasioglossa, also a small green-flowered species allied to L. xytriophora and a small form of Maxillaria lepidota, or a closely allied species.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), showed Lælio-cattleya × luminosa (L. tenebrosa × C. aurea), a pretty hybrid having bronzy yellow sepals and petals, the latter slightly spotted with rose, and a purplish rose lip with darker veining.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a small, but choice group, which gained a Silver Banksian Medal. It contained five plants of the handsome Lælio-cattleya × Charlesworthii (L. cinnabarina × C. Dowiana aurea), one form having bright yellow sepals and petals, some fine cut spikes of Oncidium splendidum (grown in leaf-mould), a fine example of Cypripedium × aureum Hyeanum, a well-flowered example of Lycaste lasioglossa, L × Balliæ, and some good L. Skinneri, an Award of Merit being given to L. S. Lady Gladys, a charming white form, having a delicate freckling of pale rose pink on the petals.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, showed Cypripedium × Thompsoni, and several good forms of Cattleya Trianæ.

Manchester and North of England Orchid.

A meeting was held at the Coal Exchange, Manchester, on January 9th, when there was capital display of Orchids.

R. Ashworth, Esq., Newchurch (gr. Mr. Pidsley), exhibited a fine group of Odontoglossums which gained a Silver Medal. A First-class Certificate was given to O. crispum magnificum, and Awards of Merit to O. c. Francisci, O. × Wilckeanum, and a plant called O. Lady Primrose. O. crispum Peetersii was good but small, and the Committee requested to see it again.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), received a Silver Medal for a very fine group of Cypripediums. A First-class Certificate was given to C. × Mons. de Curte, and Awards of Merit to C. × Lathamianum Bridge Hall var., C. × aureum var. Rogersii, and Cattleya Trianæ var. Smiling Morn.

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), received First-class Certificates for Cypripedium × Euryades West Point var., and C. × Mons. de Curte, and Awards of Merit for C. × Lathamianum giganteum, C. × nitens superbum Gratrix's var. and Cattleya Percivaliana West Point var.

W. Thompson, Esq., Stone (gr. Mr. Stevens), received a First-class Certificate for the handsome Cypripedium × Stevensii (Calypso × Albert Hye), and Awards of Merit for C. × Christopher (Leeanum giganteum × Actæus), Odontoglossum crispum giganteum, and Lælio-cattleya × Charlesworthii (L. cinnabarina × C. Dowiana aurea).

E. Rogerson, Esq., Didsbury, received an Award of Merit for Cypripedium × Sirius.

T. Statter, Esq., Whitefield (gr. Mr. Johnson), received an Award of Merit for Cypripedium × giganteum (Lawrenceanum × Sallieri Hyeanum).

R. Tunstill, Esq., Burnley, received an Award of Merit for Odontoglossum crispum Reedleyense, a fine spotted form.

Mrs. Gratrix, Whalley Range, exhibited a plant said to be a natural hybrid between Cypripediums insigne and villosum, and thus a form of C. × nitens.

W. Bolton, Esq., Warrington, exhibited a peculiar form of Cypripedium × Ceres.

A. Warburton, Esq., Haslingden, exhibited a well-flowered plant of Odontoglossum × elegans Todd's var.

Messrs. Hugh Low & Co., Enfield, received a Bronze Medal for a nice group, and Awards of Merit for Cypripedium × Euryades Low's var., and for a richly-coloured hybrid derived from C. callosum × C. Charlesworthii.

Messrs. John Cowan & Co., Gateacre, sent a few good Odontoglossums, an Award of Merit being given to O. × Wilckeanum albens.

Messrs. F. Sander & Co., St. Albans, showed several good hybrid Cypripediums.

THE HYBRIDIST.

SOPHROLÆLIA × PSYCHE.—We have another brilliant little Sophrolælia to record, the result of crossing Lælia cinnabarina ♀ and Sophronitis grandiflora ♂. A scape has just been received from Messrs. Charlesworth & Co., Heaton, Bradford, bearing two flowers, which unmistakably combine the characters of the two species. They are rather over 2½ inches across, and have the general shape and expanded character of the Sophronitis parent, but the petals reduced to half an inch broad, the side lobes of the lip enlarged to three-quarters of an inch long, and the front lobe also slightly elongated and undulate. The markings of the lip and the colour of the whole flower most resemble the Sophronitis. It is a very promising little plant, and we should suspect that the influence of the Lælia parent will give it an increased vigour and floriferousness.

CATTLEYA × ZEO.—A charming hybrid raised by Messrs. Charlesworth & Co., from Cattleya × Trianæ ♀ and C. Leopoldi ♂, and quite intermediate in character. The flower has the general shape of Lælio-cattleya × elegans, with the petals proportionately broader. The sepals and petals are of a pleasing shade of rose-purple, the side lobes of the lip nearly white inside, but suffused with blush pink outside, and the front lobe of a very brilliant purple-crimson, and nearly 1½ inches across. The scape at present has two flowers, and the plant has obviously not yet attained its full development.

CATTLEYA × PECKAVIENSIS.—A handsome hybrid raised in the collection of Baron Hruby, of Peckau, Bohemia, which is described and figured by Vogel (*Wien Ill. Gart. Zeit.*, 1901, p. 431, fig. 52). Its parentage is somewhat doubtful. The record was C. Aclandiæ × Rex, but it is remarked that the flower resembles neither of these parents, but appears to be rather a cross between C. guttata and Schilleriana. We should suggest, from an examination of the the photograph, that it may be a hybrid between C. Aclandiæ and Schilleriana. The dwarf habit and small rounded lobes strongly recall the former, and such modifications as are apparent are in the direction of the latter. C. Rex is out of the question, and C. guttata (Leopoldi is probably intended), crossed with Schilleriana, would have produced very different side lobes to the lip, not to mention other discrepancies. The flower is large, the sepals and petals green blotched with purple brown, and the lip rose. We should like to see a flower on some future occasion.

LÆLIA × NEMESIS.—Raised by De Barri Crawshay, Esq., Rosefield, Sevenoaks, between Lælia superbiens ♀ and L. anceps Crawshayana ♂, and exhibited at a meeting of the R. H. S. on January 28th last. A flower has been sent by Mr. Crawshay, who remarks that the cross was made on December 23rd, 1892, and the flowers opened on the same date nine years later. The plant is remarkably vigorous, with immense anceps-like bulbs, and the robust growth of L. superbiens. Three plants have bloomed, all being alike, and the spikes bearing three and four flowers each. The flower sent is fairly intermediate, the sepals and petals light rose-purple, over 2½ inches long, and the latter over ¾ inch broad. The lip is much darker, with the front lobe rounded, undulate, and 1 inch broad, the colour bright rose-purple, extending right round the side lobes as a broad band, inside of which are numerous radiating brown lines on a pale greenish ground. The disc is bright yellow, with five high keels, tipped with purple. Mr. Crawshay is disappointed with the result, but it is too early to judge the plant, and we have seen less attractive forms of L. anceps. Its robust habit may be somewhat inconvenient in a small house, but if it should emulate the seed parent in producing spikes of fourteen to twenty flowers, a good plant would be an imposing sight.

DENDROBIUM × HOLBROOKII.—A very pretty little hybrid from Dendrobium ×Cassiope ♀ and D. × Dominianum ♂ is sent by Mr. Godfrey, gardener to Dr. Cranstoun, Broad Street, Ludlow (together with flowers of its two parents). It is larger than D. × Cassiope, with a light reddish instead of a maroon disc, and is very fragrant. The reverse cross has flowered in the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow, and it was recorded that at a meeting of the R. H. S. held on February 14th, 1899, a group of seven seedlings was exhibited, showing considering variation in colour, from rose to nearly white (*Orch. Rev.*, vii., p. 94). Mr. Holbrook, Mr. Ashworth's gardener, writes to M. Godfrey that ten plants have now flowered, no two being alike, though one is quite the same as the one mentioned above. We suggest the above name for it, but in view of the great amount of variation it may be advisable to distinguish a few of the more distinct forms by suitable varietal names.

PAPHIOPEDILUM × XUTHUS.—A singular little hybrid raised in the collection of Reginald Young, Esq., Sefton Park, Liverpool (gr. Mr. Poyntz), from P. × chloroneurum ♀ and P. Appletonianum ♂, and most resembling the latter. The seeds were sown in October, 1897, and the first flower opened in December last. A flower of the seed parent is sent for comparison, which shows how potent the influence of the pollen parent has been. It is not unlikely that other seedlings may show a certain amount of variation in this respect.

ODONTOGLOSSUM × ROLFEÆ.

ODONTOGLOSSUM × ROLFEÆ is a beautiful hybrid from O. Pescatorei ♀ and O. Harryanum ♂, which was raised by M. Ch. Vuylsteke, Loochristi, Ghent, and flowered for the first time in August, 1898, when it was named by the raiser, and described in these pages (vi., p. 270). Several seedlings have now flowered, and have exhibited the usual amount of variation, some of them being very heavily marked with purple, and showing much of the influence of O. Harryanum, while others are lighter and show more of the Pescatorei character. The one figured is of the latter class, and is reproduced from a photograph taken by Mr. H. J. Chapman, of Camberwell,

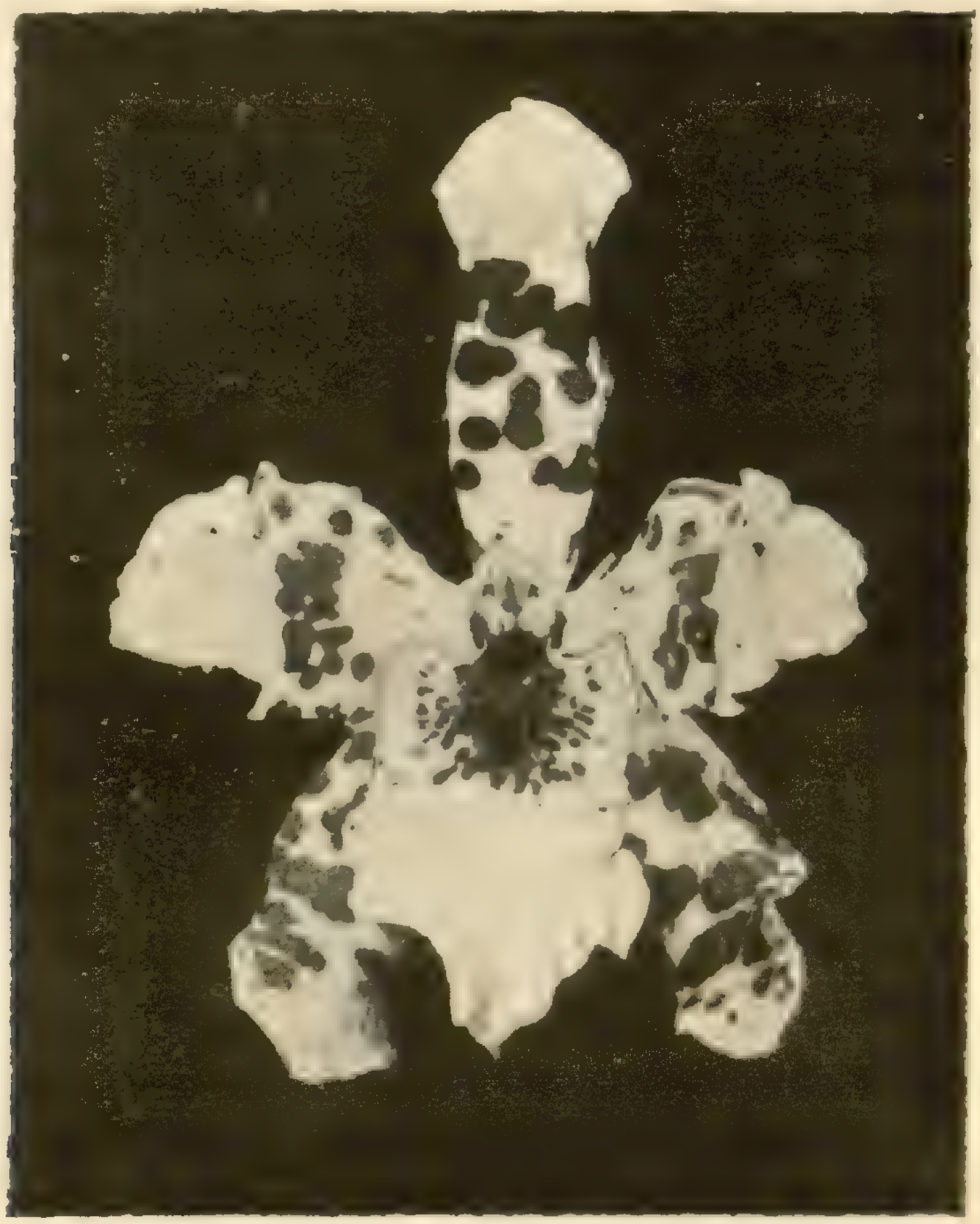

FIG. 6. ODONTOGLOSSUM × ROLFEÆ.

and kindly forwarded to us. The original form has the sepals and petals prettily and regularly spotted with purple, and a suffusion of a lighter shade near the apex, while the basal half of the lip is also regularly spotted with purple, and the rest white, as may be seen by the figure in the *Dictionnaire Icongraphique des Orchidées*. Several varieties have since been named. At the Temple Show in 1900 M. Vuylsteke exhibited varieties optimum and ardentissimum, the former receiving a First-class Certificate and the latter an Award of Merit, and a few weeks later a First-class Certificate was given to the Walton Grange variety. In the following December the variety meleagris received a similar award, as did also var. Hercules at Manchester

in March, 1901. These varieties differ considerably in the amount of spotting on the sepals and petals, in some cases being twice as heavy as in the one here figured. In all of them there is a marked resemblance to O. Harryanum, though the more spreading petals and the white ground colour must be traced to the other parent. It is one of the most beautiful hybrids in the genus, and can generally be distinguished from the allied O. × spectabile (O. × crispo-Harryanum) by the absence of white in the ground colour.

ORCHIDS FROM HIGHBURY.

SEVERAL beautiful Orchids are sent from the collection of the Right Hon. Joseph Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Lælio-cattleya × Gottoiana, the handsome hybrid between Lælia tenebrosa and Cattleya Warneri, is represented by a two-flowered inflorescence. L.-c. × Pallas (L. crispa × C. Dowiana) is very beautiful, and most resembles the former in shape, but the sepals and petals are flushed with rosy purple. and the rich colour and veining of the latter are well developed in the lip, It is also delightfully fragrant. L.-c. × Novelty is one of the older hybrids, derived from L. pumila and L.-c. × elegans, whose characters it combines. L.-c. × Sunray (L. cinnabarina × C. superba) is a most brilliant little flower, having rich orange-red sepals and petals, and a three-lobed lip of the most intense blood-red, with some yellow on the disc. L.-c. × Topaz is a brilliant hybrid, raised by Messrs. Charlesworth, from L. cinnabarina and C. Warneri. The spike carried eight flowers. L.-c × warnhamensis (L. cinnabarina × C. Trianæ) has dark salmon-coloured sepals and petals, and the front of the lip rich crimson, which shades away to salmon-colour towards the base, while the disc is bright yellow. Mr. Mackay remarks that it is very curious that in all the cinnabarina hybrids its peculiar colour seems to predominate, while in growth there is also a striking resemblance to this parent.

Dendrobium × Kenneth (Bensonæ × MacCarthiæ) is a most beautiful thing, pure white, with a rich vinous purple disc. D. × Burberryanum (Findlayanum × Dominianum) has the greater part of the sepals and petals. and the front of the lip, deep rose purple, the rest of the lip being white, with two small, deep maroon eyes, and a little yellow in the centre. D. × xanthocentron (Findlayanum × nobile) is another charming thing, quite intermediate in character; while D. × Curtisii combines the characters of D. × Cassiope and D. aureum in a very charming way. Several other more or less familiar hybrids are also sent, among which may be mentioned the interesting Lycaste × Smeeana, having pretty white sepals and petals, and the lip prettily spotted with pink.

ODONTOGLOSSUM × DUVIVIERIANUM BURFORDIENSE.

THIS unique plant was exhibited by Sir Trevor Lawrence, Bart., at the Royal Horticultural Society's meeting on January 14th last, and received an Award of Merit. Mr. White states that it was purchased at the Sale Rooms about two years ago as an imported plant, he believes from Messrs. Stanley Ashton & Co. It is markedly different from the plant described in these pages last September (p. 263), which still seems to be only known by Reichenbach's description and a figure in the *Lindenia*, and may even be of different origin, though this point must wait until materials are available for comparison. The original was considered to be a natural hybrid between O. maculatum and apterum (nebulosum), but the present one is clearly descended from the last-named and O. cordatum. It has entirely the shape of the latter, the acuminate sepals, petals, and lip being especially marked, and were it not for the very different crest, it might almost be passed over for an exceptionally fine form of O. cordatum. The crest, however, closely resembles that of O. apterum, and the influence of this species may be traced in various other details of the flower. It would be interesting to know more of the importation among which it appeared, and how far the different species above-mentioned actually grow intermixed.

R. A. ROLFE.

PERISTERIA ELATA.

IN connection with the Obituary notice of the late M. Alfred Bleu given at page 31, it may be interesting to mention that in 1877 a figure of Peristeria elata was given in the *Revue Horticole* (p. 110), with an account of the treatment adopted by M. Bleu to overcome the difficulty which had been experienced in cultivating it, and which proved highly successful. Having noticed that the leaves decayed more or less when kept constantly moist during the winter, M. Bleu decided to give the plant very little water during that period, and until the beginning of April, which is about the time that growth recommences. At this time he repotted the plant in a compost composed of equal parts of leaf-mould (*terre de bruyère*) and sphagnum. The plant then commenced to grow with great vigour, and was liberally watered until the growths were mature, after which the dry winter treatment was resumed. The leaves kept perfectly green during the winter, and in the following April M. Bleu was gratified with the production of two fine growths and a flower spike, the latter attaining a height of over a yard, and producing ten fine flowers, as shown in the illustration. It is interesting to find that the merits of leaf-mould as a compost for Orchids was recognized so long ago.

ORCHIDS IN SEASON.

SEVERAL beautiful flowers are sent from the collection of E. J. Lovell, Esq., Oxted, Surrey, by Mr. Jones. An inflorescence of Cattleya Loddigesii has the ovaries of the two terminal flowers fused together to the apex, but the various organs are all normal, so that it has the appearance of two flowers placed side by side. C. labiata is a good, bright form. The others are Odontoglossum odoratum, Rossii, and crispum, Dendrobium formosum, aureum, and Phalænopsis, Lycaste Skinneri, Lælia albida, Sophronitis grandiflora, and Paphiopedilum villosum, venustum, the fine P. insigne Harefield Hall var., and P. × Allanianum, the whole forming a very charming little group.

Four splendidly developed flowers of Lycaste Skinneri are sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno, by Mr. Axtell. The scapes measure twelve to fourteen inches long, and in one case the lateral sepals measure over two inches broad. The varieties range from nearly white to pink, in each case with more colour on the petals and lip. They are splendid examples of good culture.

Two beautiful forms of Odontoglossum × Denisonæ (Wilckeanum) from the collection of Baron Sir H. Schröder, The Dell, Staines, illustrate the remarkable range of variation in this hybrid. The variety Godefroyanum has a yellow ground with the sepals barred, and the petals heavily blotched with red brown, while the one called Princess Christian has the ground colour pure white, and both the sepals and petals are blotched with purple. In both cases the spiny crest of O. luteopurpureum is well developed.

Two very beautiful varieties of Lycaste Skinneri are sent from the collection of J. Bradshaw, Esq., The Grange, Southgate, by Mr. Whitelegge, armeniaca and one called Enchantress. The former is the well-known form with apricot-coloured lip, and the petals tinged with a lighter colour, and the latter has the front half of the lip white, with some rosy veining at the base and on the petals, the rest of the flower being blush white. Both are splendidly developed, having an expanse of six inches, while the second measures 1⅞ inches across the sepals, and the petals are very broad.

Four charming varieties of Lælia anceps are sent from the collection of Reginald Young, Esq., Sefton Park, Liverpool, namely, Sanderiana, with a purple blotch on the lip, Williamsiana, like the preceding but without the purple blotch; Stella, larger, and having a broader lip; and Schrœderiana, a still finer form, representing the culminating point of the series.

Messrs. Charlesworth & Co., Heaton, Bradford, send an inflorescence of the rare Odontoglossum retusum, whose flowers are of a deep reddish-orange colour; and part of an inflorescence of O. × mulus, the natural hybrid between O. luteopurpureum and O. gloriosum. The latter inflorescence was

branched, and bore thirty-six flowers, of which the terminal one is double, consisting of two distinct lips, two columns united side by side, each having a perfect anther, three petals and five sepals. Both the plants are very interesting.

An extremely good, dark flower of Odontoglossum Rossii majus is sent from the collection of R. le Doux, Esq., Marlfield, West Derby, Liverpool. Mr. Davenport remarks that O. Rossii makes a pretty show at the present time, the plants, bearing twelve to sixteen flowers in five-inch pots, being very useful for dinner table decorations.

Several good Paphiopedilums are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, including three good forms of P. × Euryades, P. × Sallieri, P. × S. Hyeanum, and P. × S. virens, the latter raised in the collection, P. × Lathamianum Bridge Hall var., and P. × Melia, a very pretty hybrid between P. × Calypso Oakwood var. and P. insigne Sanderianum. The fine Cattleya Trianæ Smiling Morn, to which an Award of Merit was given at Manchester the other day, is also sent.

Another form of Paphiopedilum × Charlesianum is sent from the collection of Reginald Young, Esq., Sefton Park, Liverpool. It was raised from P. × Sallieri Hyeanum ♀ and P. × Leeanum Masereelianum ♂, the seed being sown in December, 1895. Two or three other seedlings are also sent whose proper names are still somewhat uncertain, so contradictory are some of the records. It will be best to defer dealing with these for the present.

A good, well coloured form of Lælia anceps is sent from the collection of J. Richardson, Esq., Hale, near Altrincham, by Mr. Jenkins, together with a flower of Cymbidium Tracyanum. They are from imported plants.

A flower of the handsome Lycaste × Lucianiana, a natural hybrid between L. Skinneri and L. lasioglossa, is sent from the collection of Frau Ida Brandt, of Zurich, together with a small green-flowered species, allied to L. xytriophora, whose identity is rather uncertain.

Vanilla Giulianettii.—This new species of Vanilla—a native of New Guinea—is described by Mr. F. M. Bailey in the *Queensland Agricultural Journal* for October, 1900 (vii., p. 350). The specimens, which are marked as "indigenous Vanilla," are said to consist of stem, leaves, and fruits preserved in spirit, and, although flowers are not yet known, the plant has been identified as a species of Vanilla allied to the Javan V. albida, Blume. The fruits are described as eight inches long by ten lines broad. It is named after its discoverer, Mr. A. Giulianetti, Government Naturalist of New Guinea. The genus was not previously known from further east than Borneo and the Philippines.

ODONTOGLOSSUM × WATTIANUM HARDYANUM.

THIS remarkable variety was exhibited by Baron Sir H. Schröder, The Dell, Staines, at a meeting of the R.H.S. on January 14th, under the name of Odontoglossum × Wattianum Hardy's var., and received a First-class Certificate. It bore an inflorescence of 26 flowers, ten being on two short lateral branchlets. It was purchased at the Owen Sale in April, 1895, and, curiously enough, has not previously bloomed in the collection. It is one of the original plants, and was exhibited by Messrs. F. Sander & Co. at the Temple Show, in 1893, when it received an Award of Merit. It is remarkably different from the original form, having much broader sepals and petals, with much darker, heavier blotching. The sepals measure 1½ inches long by 8 lines broad, and bear two very large, blackish brown blotches, with a few smaller ones. The petals are rather smaller and less heavily marked, and the stalk of the lip is shorter and broader, the limb three-quarters of an inch broad, and bearing one very large blotch and a few smaller ones, and the crest consisting of a pair of tall toothed keels with a few smaller ones on either side. The characters of O. Lindleyanum, though less pronounced than in the original form, are very marked in the crest and column. The history of the hybrid has already been given (viii. p. 299), when it was also pointed out that the two parent species grow together in the neighbourhood of Yaramal, and that the hybrid had been artificially raised by Mr. Crawshay.

R. A. ROLFE.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during February, on the 11th and 27th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on February 6th and 20th. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

A flower of Paphiopedilum × Allanianum is sent from the collection of E. J. Lovell, Esq., to illustrate the lasting properties of the hybrids of P. Curtisii, having been out for about fifteen weeks. It is from a very vigorous plant, one of the spikes having two flowers.

Cattleya Loddigesii is really a grand thing when seen several plants flowering together at mid-winter, the delicate colour being so pleasing and beautiful as to be admired by every one.—A.L.J.

Odontoglossum × Andersonianum Jupiter, of which a flower has been sent from the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks, is a very fine form, having broad sepals and petals, very slightly flushed with pink, with a few largish red-brown, somewhat confluent blotches about the centre, and a line at the base of each petal.

Odontoglossum Pescatorei rosefieldense, from the same collection, has a number of purple spots on the sepals and petals. The plant, which bore a branching raceme of thirty-six flowers, received a Cultural Commendation from the R. H. S. on January 28th.

A handsome form of the natural hybrid Odontoglossum × loochristiense is sent from the collection of A. Warburton, Esq., Vine House, Haslingden. The ground colour is light yellow, and all the segments are beautifully spotted, while both the lip and column wings show the influence of O. crispum very strongly.

A correspondent writes that our note on Mendel's paper, though good and cautious, was not very clear, but the said paper wants reading, not *twice*, but *four times* before one really gets to the bottom of it. Alas, this explains much.

Cattleya labiata Amesiana is a very pretty light variety sent by Messrs. Hugh Low & Co., Bush Hill Park, Enfield. The flower is nearly white, with a slaty lilac tinge on the front of the lip. The plant is said to have appeared in a recent importation from Pernambuco. In the variety delicata (*Orch. Rev.*, ii., p. 358) the front of the lip is somewhat reticulated with a similar colour.

ORCHID PORTRAITS.

Angræcum Eichlerianum, Kränzl.—*Bot. Mag.*, t. 7813.

Angræcum sesquipedale.—*Gard. World*, xviii., p. 321, with fig.

Calanthe × Mylesii, Will.—*Lindenia*, t. 759.

Cattleya × Maronii.—*Amer. Gard.*, xxii., p. 879, fig. 180.

Cattleya × mollis var. Lois.—*Gard. Mag.*, 1902, pp. 22, 23, with fig.

Cœlogyne Sanderiana.—*Journ. Hort.*, 1902, xliv., p. 75, with fig.

Cymbidium tigrinum, Parish.—*Lindenia*, t. 760.

Cypripedium Chamberlainianum.—*Gard. World*, xviii., p. 312, with fig.

Cypripedium × Gloverianum.—*Lindenia*, t. 753.

Cypripedium Spicerianum.—*Journ. Hort.*, 1902, xliv., p. 27, with fig.

Dendrobium Lowii.—*Journ. Hort.*, 1902, xliv., pp. 4, 5, with fig.

EPIDENDRUM LINDLEYANUM.—*Journ. Hort.*, 1902, xliv., pp. 52, 53, with fig.

LÆLIA × EXONIENSIS.—*Amer. Gard.*, xxii., p. 861, fig. 176.

LÆLIA × OMEN.—*Gard. Mag.*, 1902, p. 9, with fig.

LÆLIO-CATTLEYA × ALESCHIANA.—*Lindenia*, t. 754.

LYCASTE DEPPEI, Lindl., VAR. PUNCTATISSIMA.—*Lindenia*, t. 755.

ODONTOGLOSSUM CRISPUM, Lindl., VAR. LA VEINE.—*Lindenia*, t. 758.

PHALÆNOPSIS SCHILLERIANA.—*Gard. World*, xviii., p. 337, with fig.

SARCOCHILUS UNGUICULATUS, Lindl.—*Lindenia*, t. 756.

SCHOMBURGKIA THOMSONIANA, Rchb. VAR. MINOR.—*Bot. Mag.*, t. 7815.

VANDA TERES, Lindl., VAR. CANDIDA.—*Lindenia*, t. 757.

CORRESPONDENCE, &c.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

W. F. O. 1, Paphiopedilum × nitens, a hybrid from P. villosum and P. insigne. 2, we do not recognise, but it looks like a hybrid from P. Curtisii. Do you not know either name or parentage?

W. M. A. Odontoglossum tripudians, Rchb. f.

J. W. P. Stanhopea platyceras, Rchb. f.

F. P. D. A peloriate state of Cattleya Trianæ, having a petal-like lip.

D. B. C. Apparently a form of Oncidium × litum, Rchb. f., a natural hybrid between O. crispum and O. Forbesii. The markings all round the lip suggest the latter.

S. D. Paphiopedilum hybrid not indentified. It has a good deal of P. venustum in it, but the parentage of this group is now so much mixed up that it is difficult to indentify them. We fear its vigorous habit is its chief recommendation.

J. H. Please send a flower when it blooms again.

Subscriber should have enclosed his name with his communication, not of course for publication.

J. A good strong print on smooth paper is all that is necessary. We would rather not have the loan of the negative, on account of the risk of breakage in the post. One has recently come to grief in this way.

Alpha. We have not the faintest idea who the two eminent orchidists are, but the writer would doubtless be pleased to tell you if you asked him.

Photographs received, with thanks. A. W. H., H. D. (we should prefer not to have the negative).

ERRATA.

Lælio-cattleya × Groganiæ (p. 30) was derived from Lælia Dayana × Cattleya Harrisoniana. "L. Digbyana" is a printer's error which escaped detection in reading the proof.

"Paphiopedilum × Helen" (p. 30) should read "P. × Helena," and the same correction applies to the "Cypripedium × Helen' a few lines lower down.

p. 13, second paragraph, for "Orchid Committee" read "Scientific Committee," and the formula a few lines lower should read "$A + 2Aa + a$."

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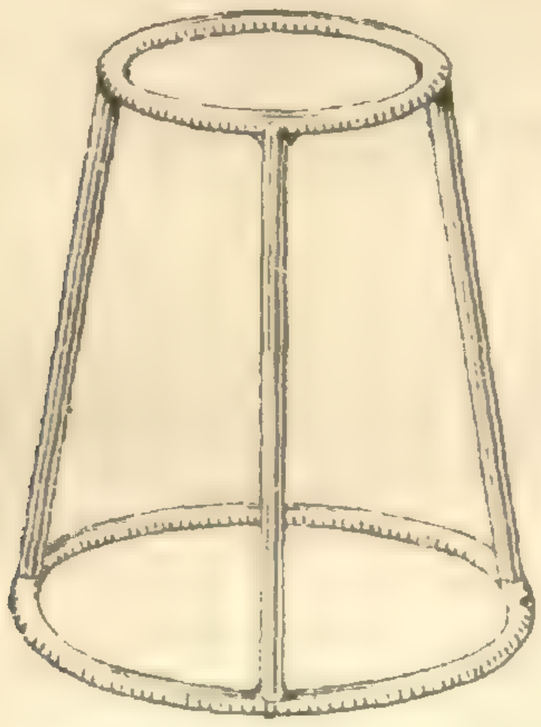

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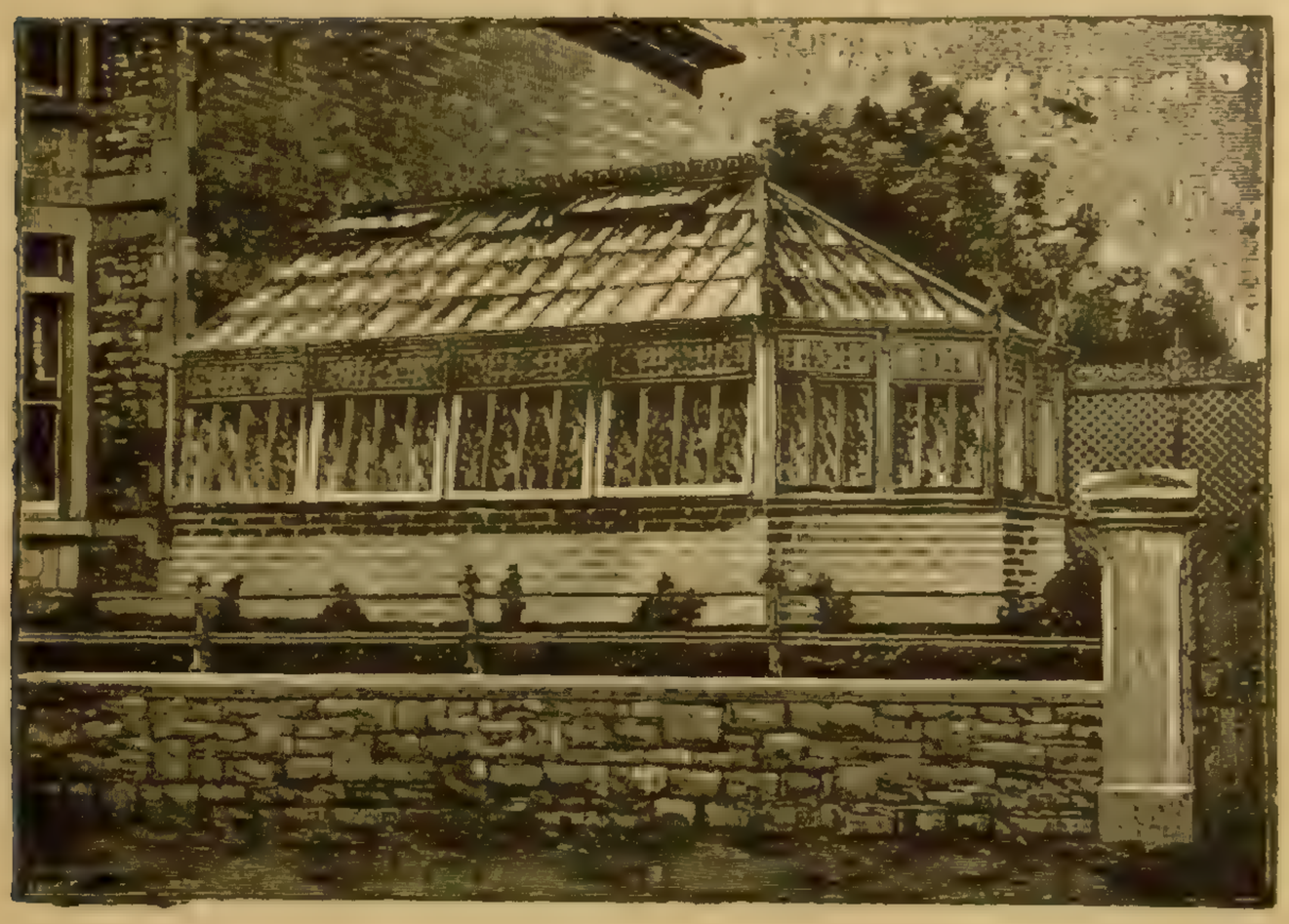

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An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *MARCH*, 1902. [No. 111.

THE GENUS BRASSAVOLA.

BRASSAVOLAS cannot be called common in gardens, though several of the species are more or less frequently met with, and, as they have been a good deal confused, a short account of those which have appeared in cultivation may be interesting. The genus is nearly allied to Lælia, but marked differences are found in the short column, with fimbriate or denticulate anther-bed, and in the presence of a beak to the ovary, which in a few cases extends to a remarkable length, being much longer than the ovary itself. And it may be added that most of the species also differ in their pendulous habit, and narrow, fleshy leaves. The genus ranges from South Mexico and the West Indies to South Brazil and Bolivia, and contains three marked sections, whose characters are pointed out below.

The section CUNEILABIA is characterized by having the lip much attenuated at the base, often being contracted into a long narrow claw, above which it is suddenly dilated into a large ovate limb. Ten species have been described, but these seem to be reducible to three, all of which are known in cultivation. They are more or less pendulous in habit, and have narrow, fleshy, sometimes terete or subterete leaves, and few- to many-flowered racemes of green and white flowers, with narrow sepals and petals and an ample dilated lip.

1. B. NODOSA (*Lindl. Gen. & Sp. Orch.*, p. 114) was based on the Epidendrum nodosum of Linnæus (*Sp. Pl.*, ed. 1, p. 953), which itself was based on some older descriptions and figures. On looking these up I find that they include two species of Brassavola, while Linnæus' var. β belongs to Broughtonia sanguinea, and must be excluded. Lindley himself had no specimen at this period, and the figures which he cites belong to two species of Brassavola ; but a note shows that the characters were drawn from Jacquin's figure of a plant collected in Baru Island, and as Lindley afterwards applied the name to a specimen gathered in Nicaragua, by C. Wright, there can be no doubt as to the plant intended. Sloane's Jamaica plant must therefore be excluded (as a matter of fact, it belongs to B.

subulifolia, Lindl.). In 1839, Lindley described a plant which had been collected in Nicaragua, and sent home by the Hon. W. F. Strangeways, as B. grandiflora (*Bot. Reg.*, xxv., Misc., p. 16), but it afterwards proved to be only a fine form of B. nodosa; and a year later he described another form of the same plant, which Messrs. Loddiges had imported from Honduras, as B. venosa (*Bot. Reg.*, xxvi., p. 20, t. 39.). It is a common and widely-diffused species, ranging from South Mexico through Guatemala, British Honduras, Nicaragua, Panama, and various parts of Columbia, to Guayaquil and Peru, and is also found in Jamaica. The following additional figures may be mentioned:—B. nodosa, *Lindl. Bot. Reg.*, t. 1465; *Bot. Mag.*, t. 3229. Epidendrum nodosum, L.; *Jacq. Sel. Stirp. Amer.*, p. 226, t. 140. B. venosa, Lindl.; *Bot. Mag.*, t. 4021. B. rhopalorrhachis, Rchb. f. (*Bot. Zeit.* x., p. 855), described in 1852 from dried specimens collected in Guatemala, by Friedrichsthal, and now cultivated at Glasnevin, seems to be only a form of B. nodosa.

2. B. ACAULIS (Lindl. in *Paxt. Fl. Gard.*, ii., p. 152, fig. 216) was introduced from Guatemala by Mr. Skinner, and flowered in the Horticultural Society's garden in 1851. It is a fine species, about equal to the preceding in size, but is easily distinguished by having the stalk of the lip relatively shorter and fully three times as broad. The species only seems to be known by the original specimen and figure, the latter having been reproduced in the *Orchidophile*, 1884, pp. 238, 239, with fig. B. lineata (*Hook. Bot. Mag.*, t. 4734) flowered in the Nursery of Messrs. Jackson, of Kingston, in June, 1853, from a plant purchased at one of Warscewicz's sales in London in the previous year. It is a native of Central America. Shortly afterwards a plant from the same source flowered in the collection of Herr. L. Matthieu, in Berlin, and was described by Klotzsch under the name of B. Mathieuana (*Allg. Gartenz*, xxi., p. 290.). I do not find any marked character by which to separate this species from B. acaulis, and am inclined to think it a form of the same species.

3. B. SUBULIFOLIA was described by Lindley in 1831 (*Gen. & Sp. Orch.*, p. 114), from a dried specimen in Lambert's Herbarium, which had been collected in the island of St. Nevis, W. Indies, by Tobin. Two years later a plant which flowered in the collection of Charles Horsfall, Esq., Mayor of Liverpool, and which had been received from William Parke, Esq., Jamaica, in the previous year, was figured in the *Botanical Magazine* (t. 3229), under the name of Brassavola nodosa, Lindl. It is, indeed, Sloane's Jamaica plant which was included by Lindley under B. nodosa, but not the Colombian plant upon which that species was primarily based, and it appears to be identical with B. subulifolia, Lindl., though I have not seen the original specimen of that. It may be added that Mr. Horsfall's plant flowered in January, 1832, and that its flowers were observed to be

fragrant at night. In 1836, Lindley figured a plant in the *Botanical Register*, said to have been imported from Brazil by Messrs. Loddiges, under the name of Brassavola cordata (t. 1913), and in 1840 it was also figured in the *Botanical Magazine* (t. 3782), with the remark that "our plants were received by Mr. Murray from Mr. Thomas Cowan, Overseer on the White Estate, Jamaica—so that the species would appear to have a widely extended range." The Brazilian habitat, however, has never been confirmed, and there can be little doubt that it is erroneous. There is, indeed, a specimen in Lindley's Herbarium, with a coloured drawing of the lip, labelled "636* Jamaica, Loddiges," which itself suggests a doubt as to the record, for although unlabelled, and not the type specimen of B. cordata, it represents the same species. In 1864, Grisebach established a new species under the name of B. Sloanei (*Fl. Brit. W. Ind.*, p. 620), under which he included B. subulifolia, Lindl., B. nodosa, Hook. f. *Bot. Mag.* t. 3229, and Sloane's original figure (*Sloane, Hist. Jamaic.* i., p. 251, t. 121, fig. 3), and this he distinguished from B. cordata, Lindl.; but on comparison of all the materials, I think that the distinction cannot be maintained, and Sloane's original figure, which represents a wild specimen, clearly belongs to B. cordata. The other two seem to be weak cultivated specimens. The species is common in Jamaica, and I have seen no specimens from elsewhere, though the St. Nevis habitat is presumably correct. The flowers are about half as large and twice as numerous as in B. nodosa.

3a. B. STRICTA (*Gard. Chron.*, 1885, xxiii., pp. 501, 505, fig. 92) is an unknown species. The figure represents a fruit, having a very short beak, and the persistent remains of the sepals and petals, with a very short column. It may belong to a species of this section, if it really belongs to the genus at all.

The section SESSILILABIA is characterized by having the lip sessile and broad from the base. Its shape is either ovate or elliptical, sometimes with a more or less acuminate apex, and the margin may be either entire or fimbriate. In the pendulous habit, narrow fleshy leaves, and narrow sepals and petals, it much resembles the preceding section, but the beak of the ovary is usually longer, and sometimes very long. Besides the following, there are about four others more or less imperfectly known, and not yet introduced to cultivation.

4. B. TUBERCULATA (*Hook. Bot. Mag.*, t. 2878) flowered in the collection of Richard Harrison, Esq., of Aigburth, Liverpool, in July, 1828. It had been sent from Botofugo Bay, near Rio de Janeiro, by Mr. Henry Harrison. The plant differs from its allies in having the sepals and petals more or less spotted with purple. The plant figured in the *Illustration Horticole* as Brassavola fragrans, Lem. (v., t. 180) has similar markings, and is evidently a form of the same species, and the same may be said of

B. Gibbsiana (*Will. Orch. Gr. Man.*, ed. 6, p. 149). It seems to be common in the provinces of Rio de Janeiro, and Santa Catherina, S. Brazil.

5. B. PERRINII was introduced from Rio de Janeiro, and flowered in the collection of Mrs. Arnold Harrison, of Aigburth, near Liverpool, being named after her gardener, Mr. Perrin (*Lindl. Bot. Reg.*, t. 1561). It afterwards flowered at the Glasgow Botanic Garden, and was figured in the *Botanical Magazine* (t. 3761). It is closely allied to the preceding, and is chiefly distinguished by its more slender habit, and in having light green unspotted sepals and petals. The two are, however, very difficult to distinguish in the dried state, and it may be found necessary in future to unite them, together with one or two species described by Rodriguez and not yet introduced to cultivation. The species described by Lemaire as Brassavola fragrans (*Jard. Fleur.*, iii., Misc., pp. 78, 79, 88, with fig.), which was sent from the island of Santa Catherina, by De Vos, seems to be identical. The species occurs in the province of Santa Catherina, and some other Brazilian localities not very clearly indicated, as well as in Paraguay and Bolivia.

6. B. CEBOLETTA was described from the collection of Consul Schiller, of Hamburg, in 1855 (Rchb. f. in *Bonplandia*, iii., p. 221). It was said to be allied to B. Perrinii, but the native country was not stated. Professor Cogniaux, however, identifies with it a plant in De Candolle's herbarium, which was collected in the province of Bahia, Brazil, by Blanchet. It is still very imperfectly known, and may not be really distinct.

7. B. RETUSA is another imperfectly known species, which was described from a specimen sent to the *Gardeners' Chronicle* for a name in March, 1847, and said to be from Maracaybo, in Venezuela (*Lindl. Bot. Reg.*, xxxiii., sub. t. 20). The sepals are light green, and the lip is cuneate-obovate, truncate. and white, with a little green at the base.

8. B. MARTIANA was originally described by Lindley, in 1836, from dried specimens collected by Martius, on the banks of the Rio Negro, Brazil (*Bot. Reg.*, xxii., sub. t. 1914), but was soon afterwards introduced to cultivation from the River Berbice, in British Guiana, by Messrs. Loddiges, of Hackney, who flowered it in 1838. It was shortly afterwards figured in the same work (xxv., t. 5). Meantime a species had been described by Lindley, under the name of B. angustata (*Bot. Reg.*, xxiv., Misc., p. 41), which had also been introduced from British Guiana, and flowered in the collection of Mr. Wilmore, of Oldfield, near Birmingham, in April, 1838; and although this has long been considered distinct, it appears to be only a form of the same species, which is common and widely diffused in British Guiana, and also found in Surinam, and in the Upper Amazon district of Brazil. It is markedly different from the preceding species in having a fimbriated lip.

9. B. CUCULLATA is the original species of the genus, and was described

by Robert Brown in 1813 (*Ait. Hort. Kew.*, ed. 2, v., p. 216). It was based on Epidendrum cucullatum, Sims (*Bot. Mag.*, t. 543), which had been introduced from the West Indies by Rear Admiral William Bligh, in 1793, and "flowered for the first time in this country in the bark stove of Edward Woodford, Esq., Vauxhall," in September, 1801. B. cuspidata (*Hook. Bot. Mag.*, t. 3722) was described in 1840, from a plant which flowered in the collection of John Moss, Esq., of Otterspool, Liverpool, and which had been received from Trinidad with various other Orchids. It was said to differ from B. cucullata in having the front lobe of the lip entire, but it has since been reduced to a form of B. cucullata. B. odoratissima was described by Regel in 1852 (*Gartenfl.*, i., p. 325, t. 33), from a specimen which flowered in the Zurich Botanic Garden, and which had been sent from Colombia by Wagener. The species is fairly common, and ranges from South Mexico and British Honduras, through several of the West Indian islands, to Venezuela. It is remarkable for the long and slender beak to the ovary, which sometimes attains a length of over five inches.

The section GRANDIFLORÆ is markedly different from the other two in its erect habit, broad flattened leaves, and large flowers, with broad obtuse sepals and petals, and broad ample lip; on which account its two species were transferred to Lælia by Bentham. But a comparison of its characters shows a far closer agreement with Brassavola, for which reason it must be returned to the genus to which it was originally assigned by Lindley. The remarkable beaked ovary is unknown in Lælia, while the characters of the column, the lacerated anther-bed, and colour of the flowers, are in agreement with those of Brassavola, not with Lælia, to which indeed the resemblance is only superficial. Both the species are natives of Central America, and one of them is remarkable for its deeply fringed lip, and the greatly attenuated beak of the ovary.

10. B. GLAUCA was described by Lindley in 1839 (*Bot. Reg.*, XXV., Misc., p. 47) as follows:—"A most curious Orchidaceous plant, obtained near Vera Cruz for the Horticultural Society by Mr. Hartweg. Its habit is so much that of a Cattleya that till it flowered it was expected to belong to that genus. It however proves to be a Brassavola, with very large flowers." Shortly afterwards it was figured in Bateman's *Orchidaceæ of Mexico and Guatemala* (t. 16), when it was stated that the species was originally found near Xalapa, in Mexico, by Henchman, who sent a single plant to England, and was afterwards imported more abundantly by a Frenchman named Deschamps, who brought over a large quantity of Orchidaceæ and Cacti for sale. It was also figured in the *Botanical Register* (XXVI., t. 44), when Lindley added that it had since been received from Guatemala, where Mr. Skinner found it growing on oaks in company with Oncidium maculatum. Bentham transferred it to Lælia, and it has generally

been known as Lælia glauca during recent years. The flowers are light whitish green in colour, either with or without a dull purple blotch in the throat.

11. B. DIGBYANA was described and figured by Lindley in 1846 (*Bot. Reg.*, xxxii., t. 53), from a specimen which flowered in the collection of Edward St. Vincent Digby, Esq., at Minterne, Dorsetshire, in July of that year. It had been sent from British Honduras by Mrs. McDonald, wife of the Governor of that Colony. Three years later it flowered at Kew, and was figured in the *Botanical Magazine* (t. 4474). For many years it remained very rare, though examples were occasionally met with, and not until its value for hybridising purposes was realized was it much sought for, after which importations were received, and it became comparatively common. It is now largely used for hybridising, and many seedlings are in existence beside those which have already reached the flowering stage. It is a remarkable species in every respect, and the beak of the mature capsule measures six inches, or three times as long as the capsule itself (*Orch. Rev.*, vii., p. 238). Had this character been known to Bentham, it is probable that his name of Lælia Digbyana would never have been given.

R. A. ROLFE.

ANŒCTOCHILI.

MR. J. K. BUDDE, Curator of the Utrecht Botanic Garden, has sent a further note to the *Gardeners' Chronicle* on the culture of Anœtochili (February 15th, p. 106), from which we make a few extracts to supplement the remarks given on page 8 of our January issue.

Mr. Budde calls them the most beautiful plants on earth, considered collectively, and remarks that, although found in both the Eastern and Western Hemispheres, the kinds that have the most lovely and richest leaf-colouring come from Java. Prof. Treub told him that they do not grow so well in the forest under natural conditions as they do under cultivation at Utrecht. Generally they are difficult to keep alive, and often he has sent a couple of healthy plants to M. A. Fiet, Curator of the Botanic Garden at Groningen, but notwithstanding careful attention sooner or later they died. Three years ago he again sent two nice little plants, which arrived in perfect order, and M. Fiet, remembering the situation in which they were grown at Utrecht, gave them a northern aspect at Groningen, and since then he has been equally successful. Mr. Budde remarks:—"We have, in one of our stoves, a small case on the north side, which is the home of our Anœctochili. Each plant is in a thumb pot, filled with good peat and living sphagnum moss, mixed with small broken pieces of charcoal and some sand. Twice a year, in March and October, they are repotted into clean pots, a work for which I use my own hands and care. From most of

them I take off young plants, an operation which every propagator understands, and keep the plants growing; when it is done they look so happy and so grateful. I am sure that if they could speak they would say, 'You have done a good work, to be sure, we will make new growth and beautiful leaves.' In summer time we give them plenty of water, but at this time of the year less, without letting them get quite dry. Whenever they show signs of flowering, we at once cut the bloom spikes out, as soon as they can be got at." Mr. Budde concludes by saying that "everybody may have a look on these pearls except 'Monsieur de Soleil,' whose beams are not good for these lovely creatures."

Mr. W. Micholitz, writing from Bhamo, has also an interesting note on the question in the issue for February 22nd (p. 130). With respect to the compost, "mainly of loam-fibre," he considers the use of such a compost as of special importance, for in loamy soil they are always found growing, and never in the light Orchid-peat and moss in which they are often potted in gardens. And he adds:—"I am very fond of these jewelled members of the Orchid tribe, and as I have seen, as you will readily believe, a good many in their native habitats, I will venture to make a few remarks, which I hope may interest your readers, and which perhaps may help to make the beautiful Anœctochili better understood.

"Now I assert that Anœctochili are not at all so delicate as they are generally supposed to be! I am certain that the real fact of the matter is that these plants are starved to death, or killed by kindness, and that they do not die much faster than is the case now, only proves their great natural vitality. Now as you well know, the Anœctochili are ground Orchids. They are found in forests growing in very rich loam. I have never seen one growing in moss in its native country. Yet what do I see at home? There, as a rule, they are planted in the old orthodox mixture of sphagnum, charcoal, and fibre rubbish, which may be suited well for an epiphyte, but hardly for a ground Orchid. Then they are generally put under a glass shade, so that the poor things cannot even get much sustenance from the air. The result, of course, is that the plant weakens, gets delicate, and ultimately dies; and the plant is blamed and not the method of cultivation. I am well aware how difficult and often impossible it is at home to give a plant the exact natural conditions it enjoys in its wild state, and modifications have to be considered; yet I am sure that if growers would procure some nice surface-loam out of the forest, and place the plants just loosely on this lumpy mixed material, perhaps with a little silver sand to keep it well open, and always keep it damp, they would be surprised at the result."

To show how hardy the Anœctochili are, Mr. Micholitz relates the story of the introduction of Anœctochilus Sanderianus. He found the plant

in British New Guinea, where it grows at an elevation of between 1,000 and 2,000 feet, and collected many, but had to wait about a month before he could get away, during which time a white mycelium proved very troublesome. At last he got to Cooktown, where he was again stranded for nine weeks, and the plants placed in a cold court-yard. Twelve days later he arrived at Batavia, and in two more days he reached Singapore, when he found the plants almost as fresh as when leaving New Guinea, and not a single plant dead. After some delay at Singapore, Mr. Fox, of the Botanic Garden there, who was coming home on leave, took charge of them, and the plants arrived at St. Albans almost as fresh as when collected. And he adds:—"I do not think any other kind of Orchid would stand such prolonged rough treatment half as well."

Then take the grandest of all the Anœtochili, I mean A. Leopoldi, with leaves six inches long and four inches broad, and most wonderfully marked. When the plants arrived in Belgium they had been on the road over three months, yet they were so good that they were exhibited at the Ghent Quinquennial Show, where I have no doubt you saw them.

In Singapore I have seen them in private gardens, just potted in ordinary soil, and treated by native gardeners just as they treat Begonias, Caladiums, and things of that sort, and they do very well.

But I think I have said enough to convey my impression that if people would seek to understand the Anœctochili, and treat them rationally and more like other plants, there is nothing in their nature which prevents them being easily grown.

LISTROSTACHYS FORCIPATA.

A VERY curious little plant which was sent from Buea, in the Cameroons, West Africa, has just flowered at Kew, and so far as can be told from the description belongs to the above plant. Listrostachys forcipata was described by Kränzlin, in 1894 (*Engl. Jahrb.*, xix, p. 254), from dried specimens, which had been collected in the primæval forests west of Buea, at 4200 feet altitude, by Preuss. It was said to be one of the smallest species of the genus, much resembling a small Oncidium iridifolium in habit, the leaves ensiform, slightly compressed, the racemes much shorter than the leaves, and few flowered, the pedicels slender and three or four times longer than the bracts, the flowers ½ inch long, with the lip almost reduced to a large infundibuliform spur, which is entire at the mouth, attenuate below and contracted, then expanding into a deeply bifid or forcipate apex. The living plant agrees in these essential particulars, and with such marked peculiarities there is little doubt of its identity. The raceme, it may be added, bears seven flowers, which are of a peculiar semipellucid white right

down to the base of the long slender pedicels. The inflated forcipate apex of the spur is very curious, and the pollinia quite typical. It is interesting to have got the little plant home alive.

R. A. ROLFE.

ODONTOGLOSSUM ROSSII IMMACULATUM.

THE charming little albino which is represented in the annexed figure appeared some years ago in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, and we do not remember to have met with an additional example. It was originally described in these pages in 1894 (ii., p. 132), and it presented

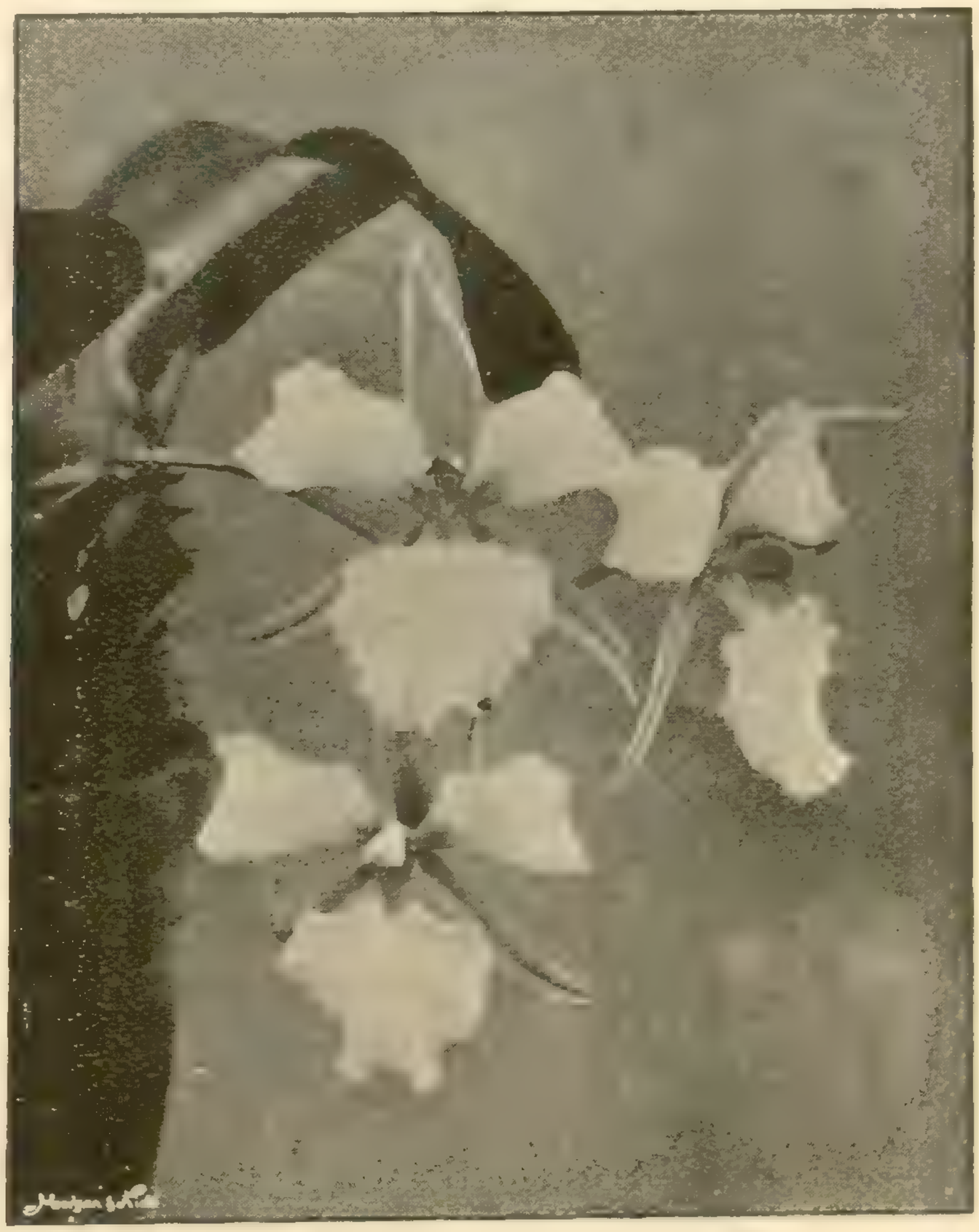

FIG. 7. ODONTOGLOSSUM ROSSII IMMACULATUM.

the same peculiarity in the preceding year. As will be seen by the figure, every trace of spotting has vanished from the flower, leaving the petals and lip white, with the sepals pale pink, thus contrasting very effectively with the typical form. O. Rossii and its varieties are among the most beautiful of spring-flowering plants, and succeed best when grown in shallow pans, and suspended from the roof of the Cool house. The variety majus is a very large form ; rubescens has the petals and lip rosy ; and Ehrenbergii has the markings of the sepals greenish in colour.

VARIATION IN SECONDARY HYBRIDS.

Paphiopedilum × Hera.

The note by M. Cappe (p. 38) on the extreme variation in his fifty or sixty hybrids of the cross Paphiopedilum × Charlesianum (P. × Leeanum × P. × nitens Sallieri), together with your comments on the twelve flowers sent, are very interesting and instructive. My own experience with the allied cross P. × Hera (P. × Leeanum × P. Boxallii) has been very similar. Out of forty-six hybrids of this cross flowered by me during the last three years, no two are exactly alike, and the extreme forms are very distinct indeed. In order to illustrate this, I am sending twenty-six flowers for your inspection, all I have out, at the present time, of this cross.

With such a wide range of variation, it is rather difficult to classify them with any precision, and if *all* the characters of form and colour be taken into consideration in each individual, it becomes a hopeless task. But if we follow Mendel's example, and take one character only, we can then group them fairly easily. For this purpose I will take the most conspicuous character, *i.e.*, the colour of the upper sepal of the flower. In this particular the twenty-six hybrids fall naturally into four distinct groups, though at the same time the extremes of these groups tend towards one another, thus forming, as it were, a complete series.

Group I, consisting of seven forms, may be termed the Boxallii-insigne section, the colour of the upper sepal being pure white above and green to yellow-green below, covered with purple and black spots except at the apex and margins, which are pure white. The pure white area is enlarged in var. burbagense, while the green area is increased in another form, the remainder varying in degree between these two extremes. The spots also vary in size, number, and colour, being larger, fewer, and darker in var. maculatum, and smaller, lighter, and more numerous in var. punctatum. The original Cypripedium × Hera (C. × Adrastus), and C. × Euryades of Veitch, together with C. × Mariæ of Peeters, belong to the above group, all being spotted forms, and the whole group, in this particular character, may be likened to P. × Schlesingerianum (P. Boxallii × P. insigne) and its numerous varieties.

Group II, consisting of eight forms, may be termed the Boxallii-Spicerianum section, the colour of the upper sepal being pure white with green base, covered or suffused with deep rose-purple and purple-black, except the apex and margins, which are pure white, and with a distinct dark purple median band. In this group also, the white and green areas vary in extent, and the purple shade in extent and intensity, the darkest forms being var. Dakini and var. Cæsar. This group, in this character, may be compared to P. × Calypso and its numerous varieties.

GROUP III, consisting of seven forms, may be termed the BOXALLII section, the colour of the upper sepal being Boxallii green to yellow green, with brown and black markings (but no definite spots), narrow white margins, and brown to black median band. Var. Hurstii (see *Dict. Icon. des Orch.*, Cyp. hyb., t. 44 A) has broad, white margins, and rich yellow green ground colour, while var. viride is a beautiful clear green, with a few black markings each side of the black median band, and narrow white margins. (This fact is rather curious, and suggests that P. Boxallii and P. villosum are either very closely related species or that they hybridise naturally in their native habitat). This group, in this character, may be compared to P. Boxallii and P. villosum and their numerous forms.

GROUP IV consists of four forms, which are unlike anything else I have seen, and might be described as intermediate, in the colour of the upper sepal, between the three grandparent species P. Boxallii, P. Spicerianum, and P. insigne. The ground colour is yellow-green, marked and shaded with brown and purple, with white apex and broad white margins, and with a distinct median band either brown or purple. Var. Stormberg has a broad, white, dorsal sepal, with a small green area at the base, marbled with purple, which extends into the white, and terminates in a median band.

So much for a single character. The other characters, both in form and colour, *taken singly*, come out on analysis in a similar manner; but if we attempt to consider each hybrid as an individual made up of many characters, the result is a complicated chaos impossible to define. For further details of these hybrids and their bearing upon present day problems of heredity and variation, I must refer the reader to my forthcoming paper on Mendel's "Law" in the *Journal of the Royal Horticultural Society*.

With regard to the question of nomenclature raised by M. Cappe: now that the authorities are all of one mind, it is quite a simple matter, and may be summed up in a single sentence: ONE CROSS, ONE NAME. In this way only can we ear-mark the pedigree of every hybrid, or as the Editor admirably puts it:—"*The common name indicates the common origin.*"

C. C. HURST.

A remarkable series, and some of the forms are striking and beautiful, particularly those mentioned by name, though a few others are worth taking care of, and a dozen really good things could easily be selected. The character chosen for classifying them, namely, the colour of the dorsal sepal, is the most striking one, and the one by which they would largely be judged from a florist's standpoint, besides being largely in agreement with the predominating colour of the petals and lip. The more salient features have been so well outlined by Captain Hurst that it is not necessary to add further descriptive remarks, though we may add that the question is one of

great biological interest, and we hope that the important question of nomenclature involved will be borne in mind by raisers. Materials for selection abound on every hand, and selection is the order of the day, but we must also aim at a clear and concise system of nomenclature, which will enable us to trace the origin of our plants in the future.

CULTURE OF ORCHIDS IN LEAF-MOULD.

I SEE by the horticultural papers, and particularly by the articles published in the *Orchid Review* and the *Gardeners' Chronicle*, that the question of growing Orchids in leaf-mould is now engaging great attention in England, and I think that the opinion of those who have cultivated Orchids for long periods, and in various parts may have some value in the debate. My own opinion, which is also that of my foreman, M. Van Cauwenberghe—and we have studied the question in the same fields of experience for a period of 27 years—may be of some value.

At Moortebeek, where the cultivation of Orchids has often been cited as a pattern, we have not adopted the new method, for the simple reason that from our own trials, and from those that we have seen made by others, we have not yet seen results superior to those obtained by the old system. We do not believe that the nature of the ingredients which sustain the plant are of primary importance in the culture of Orchids. The principal factors of success consist in giving plenty of air, the proper amount of moisture at different periods of their growth, rest, and the provision of a suitable temperature. It is quite a secondary matter whether the plants are cultivated on blocks of wood (for Cattleyas), in crocks, in green moss, living sphagnum, in leaf-mould, or in polypodium fibre. Manure we never use. Formerly my father used to grow all his Orchids in sphagnum as fresh as possible, and his plants were as fine as ours of to-day. We almost dare to say that if the materials used in potting should be of primary importance in cultivation, it is the use of living sphagnum that we recommend above all others. When a plant is in bad health, whether it is an Odontoglossum, a Cypripedium, or a Cattleya, is it not in living sphagnum that it will regain strength? Does not life bring back life? Finally, in order to complete our researches, we have bought from various amateurs and nurserymen Cypripedes and other Orchids that have been potted in leaf-mould, and on examining them, the only living roots that we found were in the sphagnum moss with which the plants were surfaced. In the soil they were generally rotten. What advantage therefore could this be to them?

We certainly do not condemn the new system of culture, but its chief advantage is that it takes away from novices the fear that they had of cultivating Orchids. A plant that can be potted like a Fuchsia or a

Geranium no longer frightens one. Let them, therefore, in England and elsewhere, try the new method of culture in leaf-mould; experienced cultivators will understand why I say that it will only be service to those who do not know how to cultivate Orchids.

If a Commission were sent to Belgium to study the new system, I would strongly invite them to visit also our Moortebeek establishment, and to make a comparison.

L. LINDEN.

[The above is a translation of a letter sent to us by M. L. Linden, and we take the opportunity of saying that we invite others to send us their experience on this important question.—ED.]

CALENDAR OF OPERATIONS FOR MARCH.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperatures in the various departments may now, with advantage, be slightly increased. The following will be a useful guide:—

COOL HOUSE: Day, 60°; Night, 50° to 55°.

INTERMEDIATE HOUSE: Day, 65°; Night, 55° to 60°.

EAST INDIAN HOUSE: Day, 70°; Night, 60° to 65°.

With the increase of temperature, it follows that the atmospheric conditions should gradually become more favourable to new growth. The amount of water afforded the plants may also be increased without fear of injury, and damping down will be necessary two or more times a day, as circumstances require. Avoid urging the plants into active life too soon, however, by employing an undue amount of heat and moisture; rather allow them to take a natural course, giving cultural assistance when necessary by placing those in a forward stage of growth where the best conditions may be obtained. Make use of mild weather and bright days by giving more air than hitherto, using bottom ventilators only. Now that the sun is giving more power, the houses may sometimes become uncomfortably hot. I find it advantageous to use blinds in order to keep the temperatures under, rather than ventilate too freely, especially at this season, when cold winds are often prevalent. The chief evil the cultivators must guard against is to avoid direct draught reaching the plants.

EAST INDIAN HOUSE.—Many of the occupants of this house will now require attention in the way of re-potting or top-dressing, as, for instance, Aërides, Saccolabiums, Vandas, Angræcums, &c. Plants of this class often appear unsightly through loss of the lower foliage, so it becomes necessary to remedy this by replacing them in other receptacles, which requires care and judgment in so doing, or injury will result. The receptacles may take the form of pots, pans, or baskets, the latter being preferable for many,

especially Aërides. The basal portion of the stems may, in most cases, admit of being cut off before insertion, after which the plant should be firmly secured, carefully twining the roots through the bars of the basket, then filling the receptacle with clean crocks, and surfacing over with clean picked, living sphagnum moss. The plants that only require top-dressing should have the old moss and as many of the crocks as possible taken out, and replaced with clean drainage and fresh moss, placing the heads uppermost, to give a fresh, green appearance when growth commences. Afford little water until the moss has freshened into life. A. Fieldingii, A. crassifolium, and A. odoratum require a shady position in the Cattleya house, whilst A. Vandarum thrives best in the Cool house.

ANGRÆCUMS.—Many of these are fast developing their flower spikes, amongst which may be mentioned A. Sanderianum, A. Ellisii, A. Leonis, A. falcatum, A. citratum, and the pretty little A. fastuosum. Any re-potting necessary with these should be delayed until the flowering stage is passed. Continue to give water in moderation. The small growing section does best grown in pans or baskets, with liberal drainage, and moss pressed firmly about the base, whilst A. sesquipedale, A. eburneum, A. superbum, and A. Scottianum should be grown in pots, giving plenty of drainage and little moss at the base, for abundance of water is needed during the growing season.

VANDAS.—Some of these will now require attention, as V. Sanderiana, V. Roxburghii, V. Denisoniana, V. insignis, V. Parishii, and V. lamellata, baskets suiting their requirements best, and they should be grown suspended on the side of this house, renovating their condition, as circumstances require. V. gigantea and V. Batemaniana require pot culture, being strong growing species; afford them a light position and a moderate supply of water until the growing season is more advanced. V. cœrulea, one of the most beautiful of the genus, requires somewhat cooler treatment than those previously mentioned, and, above all, must have a pure atmosphere to grow satisfactorily, and for this reason we so seldom see it growing well near a smoky district. Plants that have been kept cool and on the dry side since February are now emitting new roots, and should have attention by giving fresh sphagnum moss, and clean drainage where required. Baskets are always preferable for this species, because its roots resent confinement. A suitable position may be found in the Cattleya house, so that plenty of light, air, and moisture can be given during the growing season, these being the most essential points in its successful cultivation.

LÆLIA ANCEPS, and its many varieties, such as L. a. Schrœderiana, L. a. callistoglossa, L. a. Sanderiana, L. a. Stella, L. a. Dawsoni, L. a. Amesiana, and L. a. Chamberlainiana, that require re-potting or otherwise

renovating, should now receive attention, for root action has already commenced. I favour pans in preference to baskets, as the plants are more easily potted when occasion requires. These should be well drained, using for the compost good, turfy peat and sphagnum moss. Cut away any dead roots or pseudo-bulbs not required, keep the base of the plants on a level with the rim, with the leads facing the same, then insert the peat firmly among the roots until the pan is filled, finishing the whole with good heads of sphagnum moss. Give water sparingly for a few weeks to newly-potted plants; an occasional syringe overhead on bright days will suffice. Afford plenty of strong light and ample ventilation, in order to secure the best results from these conspicuous Orchids.

MILTONIA VEXILLARIA.—These plants are now forming their new pseudobulbs, and the present is a suitable time for any re-potting that may be necessary, for roots will be forming at the base of the maturing growths. The compost may consist of three parts chopped sphagnum moss to one of peat; use perfectly clean pots and fill to two-thirds their depth with drainage, which may consist of crocks or bracken root, the latter answering very well. The plants should be elevated a little above the rim; press the compost moderately firm round the base of the plant, and finish off with a layer of picked sphagnum moss. When finished give a good watering, and shade from strong sunlight until the plants re-establish themselves. Afford plenty of moisture at the root, and in the atmosphere, until the flowering stage is reached. Miltonia × Bleuana succeeds well if given a position with the former in the Intermediate house. This free flowering hybrid is a most desirable Orchid to have; it flowers earlier than M. vexillaria, and already its flower spikes are well advanced. Water may be liberally afforded at the present time.

MILTONIA ROEZLII and M. R. alba require to be grown in more heat, and enjoy a moist, shady position in the East Indian house. It is advisable to re-pot any that may require it, using a compost similar to the one recommended for M. vexillaria. It will be found that they thrive best under humid conditions, and these should be encouraged at all seasons. Thrips are very troublesome in Miltonias, but these may be kept in check by light fumigatings with XL-All.

CATTLEYAS.—Some of the labiata section are commencing new growth, such as C. Warneri, C. Gaskelliana, C. Warscewiczii, and C. Trianæ, and should be re-potted or top-dressed as their needs require.

CALANTHES.—The deciduous section, which comprises C. rosea, C. vestita, C. × Veitchii, C. × William Murray, and C. × Bryan, &c., are commencing new growth, and these may be re-potted just before new roots are emitted. A suitable compost consists of three-parts good fibrous loam to one of leaf soil, adding a quantity of broken crocks and silver sand,

mixing the whole well together, and afterwards putting it in a suitable place to warm, previous to use. Unless specimens are required, by placing five or six bulbs in a seven inch pot, it is better to grow them singly in five or six inch pots. These should be well drained, with clean, broken crocks, over which place a layer of old moss or leaves. When ready for potting, shake the plants out of the old soil, and cut away the dead roots to about an inch from the pseudobulb; these will tend to keep the plant firm in the compost. The soil should be pressed firmly, so that the base of the bulb is covered about an inch. When potted, water with tepid rain water, giving them a light position near the glass in the warmest house. Afford no more water until the young growths are well advanced and rooting freely, when the amount of water should be increased, giving occasional waterings with weak liquid cow manure, as the pseudobulbs begin to form.

THUNIAS may also be re-potted, using a compost similar to that advised for Calanthes. Select four stems of uniform size, and secure to a stick in the centre of a six inch pot. Pot firmly, and give them a sunny position near the glass in the Cattleya house, and water sparingly until new roots are freely made. Thunias are greatly benefited by frequent waterings with liquid cow manure when growth is well advanced.

CYRTOPODIUMS, CATASETUMS, CYCNOCHES, and MORMODES have had a long, dry rest. These will now be commencing new growth, and may have attention. The conditions of the warmest house suit them, giving little water until growth is well forward.

In the COOL HOUSE many plants are fast developing flower spikes, and these should be protected from slugs by placing a little cotton wadding round the base of each. Thrips, fly, or red spider may be kept under with a little timely care and attention bestowed on the plants; remembering that cleanliness is a great point in their successful cultivation.

A REVERSION OF CALANTHE × VEITCHII.

A RACEME of Calanthe × Veitchii is illustrated in the *Journal of Horticulture* for February 20th (p. 161) in which the sepals and petals are rose-coloured and the lip white. It is said to have been produced in the Rangemore Gardens, Burton-on-Trent, some years ago, and is considered to show a partial reversion towards the parent C. rosea in the form and colour of the sepals and petals, and in the compact raceme, and towards C. vestita in the colour of the lip. Whether the plant was a sport from the ordinary form of C. × Veitchii is not stated. It may be analogous to the variety versicolor, in which the flowers are said to be variable, some rose, some white, others with one or more of the segments rose, and the remainder white.

ODONTOGLOSSUM CITROSMUM ALBUM.

THE annexed illustration represents a beautiful white form of Odontoglossum citrosmum from the collection of Dr. A. W. Hoisholt, Stockton, California. Dr. Hoisholt, in sending the photograph, remarks that he

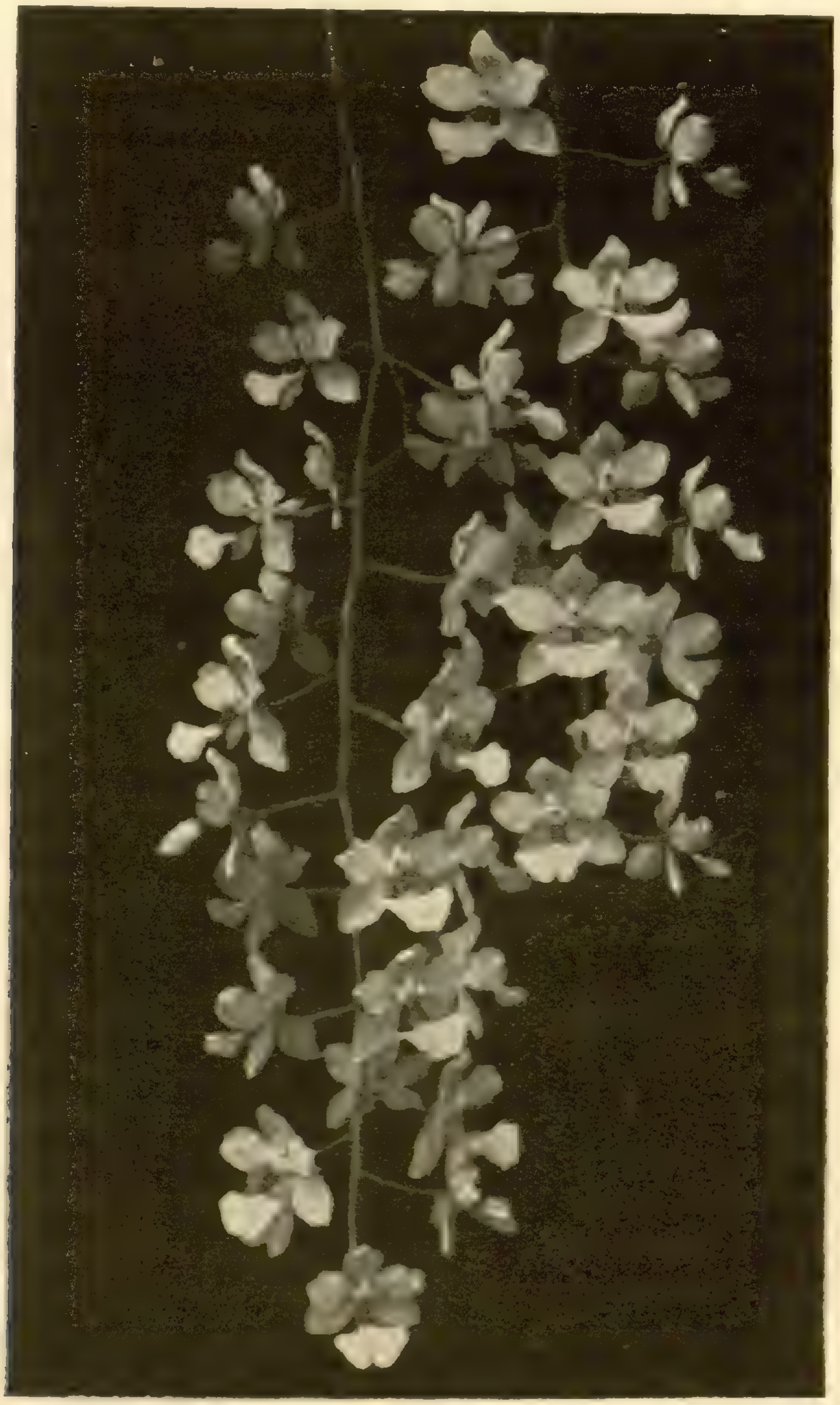

FIG. 8. ODONTOGLOSSUM CITROSMUM ALBUM.

thinks it "extraordinary in having two spikes, with an aggregate of forty flowers, all from one new growth, the spikes appearing one above the other. The larger spike had 24 flowers, six of which appeared on a side branch,"

which, however, is not well shown in the illustration. Curiously enough it extends downwards almost behind the main rachis, though it is just visible in the photograph; also in a second photograph sent showing the entire plant. This, though less suitable for reproduction, shows that the pseudo-bulbs and leaves are very fine. Dr. Hoisholt adds that "the species does well with him in a half-span Cool house, facing east, and running north and south, the north gable end of which is almost fully open at night during the summer months." Also that although branching spikes may not be uncommon, he has not seen one before among a large number of plants. O. citrosmum album was described in 1887 (*Veitch Man. Orch.*, i., p. 19), but that was not the first appearance of the plant, for in 1880 we find mentioned, in a reply to W. Bishop, a form of O. citrosmum with flower entirely white except the yellow crest (*Gard. Chron.*, 1880, xiii., p. 602). It is a very beautiful variety, as the illustration shows.

BRASSAVOLA HYBRIDS.

ALTHOUGH the species of Brassavola do not yet appear to have been successfully crossed together, they have been united by hybridisation with Cattleya, Lælia and Lælio-cattleya, and it may be interesting to collect together the different hybrids which have appeared, no connected account of them having yet been given.

The earliest mention of a Brassavola hybrid seems to have been in 1889, when a note appeared to the effect that the plant which had long been known as Cattleya Lindleyana was, in all probability, not a species, but a natural hybrid between Cattleya intermedia and Brassavola tuberculata (Rolfe in *Gard. Chron.*, 1889, v., p. 437.). The note is as follows:—

"CATTLEYA LINDLEYANA.—What would happen if Mr. Seden, or some of his enterprising co-workers, were to hybridise Cattleya intermedia with Brassavola tuberculata? Well, it is somewhat difficult to say, as so much depends upon circumstances. The cross might refuse to take, or the capsule, if produced, might contain no good seed; neither of which are at all uncommon occurrences. Even when young plants are produced, a hungry slug will sometimes upset the most carefully devised experiments in a single night. But supposing all the perils incidental to Orchid babyhood safely passed, would the hybridist be surprised if the so-called Cattleya Lindleyana appeared when the flowering stage was reached? I confess I should not, on the contrary I think it most probable that such would be the end of the experiment. There has always been something mysterious about the plant, and more than once I have looked at dried specimens and drawings, and thought of Brassavola. As a good plant has just flowered at

Kew, I thought it worth while to make a careful comparison with possible parents. The result is, I believe it to be a natural hybrid between the two plants above named, both of which grow in the province of Santa Catherina, South Brazil, whence the plant came. It has decided characters of both supposed parents, and may be said to be fairly intermediate between them, though with a balance of characters in favour of the Brassavola. Following the plan proposed for dealing with these bi-generic hybrids, the name Brassocattleya × Lindleyana may be adopted for the plant."

BRASSOCATTLEYA.—Although no one has yet succeeded in raising the hybrid just mentioned, a closely allied one has been raised by M. Chas. Maron, by crossing Brassavola fragrans and Cattleya intermedia, which has been called Brassocattleya × nivalis, and now that the so-called Lælia Digbyana has been returned to Brassavola, the hybrid genus Brassocattleya will receive several accessions, which have previously been referred to Lælio-cattleya. And the necessity of this transfer furnishes the opportunity of giving single specific titles to several hybrids which have not hitherto been named in accordance with this salutary rule.

1. BRASSOCATTLEYA × LINDLEYANA. — This plant was originally described by Reichenbach, in 1857, under the name of Cattleya (!) Lindleyana (*Allg. Gartenz.*, xxv., p. 118), from a specimen which flowered with M. J. Linden, of Brussels, and which had been imported from Santa Catherina, S. Brazil. The author described it as without allies, but as having the pseudobulbs and leaves nearly as in Lælia cinnabarina, and flowers approaching Cattleya intermedia. In 1864 it was figured in the *Botanical Magazine* (t. 5449), from a specimen said to have been sent from Bahia by C. H. Williams, Esq., and which flowered at Kew in September, 1863. The habitat now seems doubtful, and it may be added that the plant had also flowered at Kew in November of the previous year. Since then other examples have appeared, but the hybrid still remains comparatively rare.

2. BRASSOCATTLEYA × VEITCHII.— It was in 1889 that the first hybrid from Brassavola Digbyana flowered, the seed parent being Cattleya Mossiæ, but as the former parent was then referred to Lælia, the hybrid was described as Lælio-cattleya × Digbyana-Mossiæ (Rolfe in *Gard. Chron.*, 1889, v., p. 742). It had previously been exhibited by the raisers, Messrs. James Veitch & Sons, on May 14th, under the name of Lælia Digbyana × Mossiæ, and received a First-class Certificate (*Gard. Chron.*, 1889, v., pp. 630, 657, 658, fig. 111). As compared with the Brassavola parent, the flower is considerably enlarged, and more expanded, with the colour a pleasing shade of rose-pink. The lip is elegantly fringed, though not nearly to such an extent as in the pollen parent. It was welcomed as a great acquisition, and was regarded as the possible forerunner of a race with

fringed flowers. With respect to the change of name a word may be said. When originally described in the *Gardeners' Chronicle*, under the name of Lælio-cattleya × Digbyana-Mossiæ, the Editor remarked :—"The generic name is felicitous, but we hope some means may be taken to render the specific name less cumbrous," a hope that is at last carried into effect.

3. BRASSOCATTLEYA × SEDENI.—It was not until 1897 that a second hybrid from Brassavola Digbyana appeared, but on April 13th of that year a plant was exhibited by Messrs. Veitch, at a meeting of the R.H.S., under the name of Lælio-cattleya × Digbyano-Trianæ, and was awarded a First-class Certificate. In this case Cattleya Trianæ was the seed parent. The plant passed into the collection of Sir Frederick Wigan, Clare Lawn, East Sheen, and was described in these pages (v., p. 132). It was raised by Mr. Seden, to whom it is now dedicated. It bears considerable resemblance to B. × Veitchii, but is rather darker in colour.

4. BRASSOCATTLEYA × THORNTONI.—A little later in 1897, a third hybrid appeared, having been raised in the collection of T. W. Thornton, Esq., Brockhall, Weedon, from Cattleya Gaskelliana ♀ and Brassavola Digbyana ♂. It was described in these pages as Lælio-cattleya × Thorntoni (v., p. 339). In the following year the same hybrid flowered with Messrs. James Veitch & Sons, and received a First-class Certificate from the R.H.S. on April 26th (*Orch. Rev.*, vi., p. 159). It is rather lighter in colour than B. × Veitchii, which it otherwise much resembles.

5. BRASSOCATTLEYA × BELLAERENSIS.—A hybrid raised by M. G. Mantin, of Paris, it is said from Brassavola Perrinii ♀, and Cattleya guttata ♂, though by the latter name it is probable that C. Leopoldi is intended. It was exhibited at a meeting of the Société Nationale d'Horticulture de France, at Paris, on July 28th, 1898, under the name of Correvonia × bellaerensis, which M. Cogniaux, in a note, amended to Brassocattleya × bellaerensis (*Chron. Orch.*, p. 150). The sepals and petals are narrow and pale green, and the lip white at the base, and purple at the apex, with some sulphur yellow and a band of purple spots in the centre.

6. BRASSOCATTLEYA × MARONI.—In 1899 another novelty appeared, being raised by M. Ch. Maron, of Brunoy, from Cattleya Mendelii ♀ and Brassavola Digbyana ♂. It was exhibited at a meeting of the R.H.S., on March 14th, under the name of Lælio-cattleya × Inpératrice de Russie, and received a First-class Certificate. The flower is white, beautifully tinged with light pink. Afterwards the name of L.-c. × Digbyano-Mendelii was imposed, and it is curious to note that in 1901 no less than three First-class Certificates were given to its varieties by the R.H.S. These were called Hessle var., Tring Park var., and Veitch's var., and the fact affords eloquent testimony to the beauty of this hybrid, which we now dedicate to its raiser.

7. BRASSOCATTLEYA × NIVALIS.—A hybrid from Brassavola fragrans × Cattleya intermedia, raised by M. Chas. Maron, and exhibited by him, at Paris, on January 14th, 1900, when it received a Second-class Certificate of Merit (*Chron. Orch.*, p. 325). The plant was also exhibited by J. Leemann, Esq., Heaton Mersey, at a meeting of the R.H.S. on May 7th, 1901, and received an Award of Merit.

8. BRASSOCATTLEYA × MARONÆ.—Last year M. Ch. Maron made another remarkable addition to the group, when he flowered a seedling derived from Cattleya Warscewiczii ♀ and Brassavola Digbyana ♂. It was exhibited at a meeting of the R.H.S., on September 24th, under the name of Lælio-cattleya × Madame Chas. Maron, and received a First-class Certificate (*Orch. Rev.*, ix., p. 317). It was afterwards described and figured in these pages under the name of Lælio-cattleya × Maronæ (ix., p. 329, fig. 48). It is said that the above award was afterwards withdrawn because a flower was not handed in for painting, which of course in no way detracts from its beauty. Its general character may be seen in the illustration above cited.

9. BRASSOCATTLEYA × ORPHEUS.—A very interesting hybrid raised by Messrs. James Veitch & Sons, from Brassavola glauca ♀ and Cattleya Trianæ alba ♂, to which an Award of Merit was given at a meeting of the R.H.S., on January 14th last, under the name of Lælio-cattleya × Orpheus (*supra*, p. 51). It is fairly intermediate in character, having the sepals white, slightly tinged with pink, and the petals and lip white, the latter having a sulphur yellow disc.

BRASSOLÆLIA.—A hybrid genus established to receive the hybrids between Brassavola and Lælia, of which three are now known.

1. BRASSOLÆLIA × VEITCHII.—In 1898 a hybrid between Lælia purpurata ♀ and Brassavola Digbyana ♂ appeared, being exhibited by the raisers, Messrs. James Veitch & Sons, of Chelsea, at a meeting of the R.H.S., on December 13th, under the name of Lælia × Digbyano-purpurata, and to which an Award of Merit was given (*Orch. Rev.*, vii., p. 31). It is most like L. purpurata in shape, the sepals and petals blush white, and the lip purple in front.

2. BRASSOLÆLIA × GRATRIXIÆ.—In the following year a notable addition appeared, in the shape of a hybrid between Lælia cinnabarina ♀ and Brassavola Digbyana ♂. Messrs. James Veitch & Sons were again the raisers, and the plant was exhibited at a meeting of the R.H.S., on October 24th, under the name of Lælia × Mrs. M. Gratrix, and gained an Award of Merit. Two days later it received a similar award from the Manchester Orchid Society (*Orch. Rev.*, vii., pp. 349, 351). The flowers are fairly intermediate in shape, and the colour buff-yellow, somewhat tinged with copper on the sepals and petals. A similar award has since been given to the

variety superba (*Orch. Rev.*, viii., p. 60), and a First-class certificate to the variety grandis (*Orch. Rev.*, ix., p. 24).

3. BRASSOLÆLIA × CLIO.—Another interesting hybrid from Brassavola glauca, raised by Messrs. James Veitch & Sons, and exhibited at a meeting of the R.H.S., on January 15th last. The seed parent was Lælia cinnabarina, and the flower of the hybrid is light reddish buff in colour, and fairly intermediate in other respects, though at present obviously undeveloped.

BRASSOCATLÆLIA is a hybrid genus established in 1897 for a hybrid between Brassocattleya and Lælio-cattleya, to which a second hybrid is now added, and which will serve to distinguish any hybrid in which the characters of the three genera Brassavola, Cattleya, and Lælia are combined.

1. BRASSOCATLÆLIA × LAWRENCEI.—A hybrid derived from Brassocattleya × Lindleyana ♀ and Lælio-cattleya × elegans ♂, from the collection of Sir Trevor Lawrence, Bart., Burford, Dorking, to which an Award of Merit was given by the R.H.S., on December 14th, 1897, under the name of Brassocatlælia × Lindleyano-elegans (*Orch. Rev.*, vi., p. 30). The sepals and petals are blush white and the lip purple.

2. BRASSOCATLÆLIA × WIGANII.—At the Temple Show, in 1901, a very handsome hybrid was exhibited by Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, under the name of Lælio-cattleya × Edgar Wigan, to which a First-class Certificate was given (*Orch. Rev.*, ix., pp. 184, 196). Its parents are Lælio-cattleya × Aphrodite ♀ and Brassavola Digbyana ♂. The first-named hybrid was derived from Cattleya Mendelii and Lælia purpurata, from which its general character may be inferred. The flower has much of the general shape of the Brassavola parent, with the fringe of the lip greatly reduced, and the colour blush pink, with the front of the lobe of the lip darker in colour, and a tinge of sulphur in the throat.

OBITUARY.

Mrs. R. BRIGGS-BURY.—We deeply regret to hear of the death of this lady, at her residence, Bank House, Accrington, on Feb. 7th, at the age of 62 years. The deceased was a most enthusiastic orchidist, and the possessor of a very fine collection, which was frequently represented at the meetings of the Manchester Orchid Society, and occasionally in London. She was a successful exhibitor at Manchester on the day preceding her death.

HENRY TATE.—We regret to hear of the death of this gentleman, at his residence, Bolney House, Ennismere Gardens, London, at the early age of 48. He formerly resided at Allerton Beeches, Liverpool, where he possessed a choice collection of Orchids, which was sold some time ago.

R.H.S. ORCHID COMMITTEE.

THE following gentlemen constitute the Orchid Committee of the Royal Horticultural Society for the current year (New Members are distinguished by an asterisk) :—

VEITCH, H. J., F.L.S., King's Road, Chelsea, S.W. *Chairman.*
FOWLER, J. GURNEY, Glebelands, S. Woodford. *Vice-Chairman.*
LAWRENCE, SIR TREVOR, Bart., V.M.H., 57 Princes' Gate, S.W. ,,
SCHRÖDER, BARON, V.M.H., The Dell, Staines. ,,
O'BRIEN, JAMES, V.M.H., Marian, Harrow-on-the-Hill. *Hon. Sec.*
*ASHTON, F. W., Southgate, N.
ASHWORTH, E., Harefield Hall, Wilmslow, Cheshire.
BALFOUR, PROF. BAYLEY, F.R.S., V.M.H., Edinburgh.
BALLANTINE, H., The Dell Gardens, Staines.
BILNEY, W. A., Fir Grange, Weybridge.
BOND, T. W., Elstead House Gardens, Godalming.
*BOXALL, W., V.M.H., 186 Brook Road, Upper Clapton.
BROOMAN-WHITE, R., Arddarroch, Garelochhead, N.B.
CHAPMAN, H. J., Cambridge Lodge Gardens, Camberwell.
*CHARLESWORTH, J., Heaton, Bradford.
COBB, WALTER, 33 Broadwater Down, Tunbridge Wells.
COLMAN, J., Gatton Park, Reigate, Surrey.
COOKSON, NORMAN C., Oakwood, Wylam, Northumberland.
CRAWSHAY, DE BARRI, Rosefield, Sevenoaks.
*CYPHER, JOHN J., Queen's Road, Cheltenham.
DOUGLAS, JAMES, V.M.H., Edenside, Great Bookham.
*FIELDING, C. H., Southgate House, Southgate.
HILL, E., Tring Park Gardens, Tring.
HISLOP, A., Bletchley Park Gardens, Bletchley.
LATHAM, W. B., Botanic Gardens, Birmingham.
LAW-SCHOFIELD, G. W., New Hall Hey, Rawtenstall, Manchester.
LITTLE, H., Baronshalt, The Barons, E. Twickenham.
MOORE, F. W., V.M.H., Royal Botanic Gardens, Glasnevin.
*MOORE, G. F., Bourton-on-the-Water, Gloucestershire.
ODELL, J. W., The Grove, Stanmore, Middlesex.
PITT, H. T., Rosslyn, Stamford Hill, N.
POLLETT, H. M., Fernside, Bickley, Kent.
POTTER, J. WILSON, Elmwood, Park Hill Road, Croydon.
REHDER, FRANK, 29 Mincing Lane, E.C.
SANDER, F., V.M.H., St. Albans.
THOMPSON, W., Walton Grange, Stone, Staff.
THORNE, F. J., The Gardens, Sunningdale Park, Bucks.
TRACY, H. A., Amyand Park Road, Twickenham.
WHITE, W. H., Burford Lodge Gardens, Dorking.
YOUNG, W. H., Clare Lawn Gardens, East Sheen.

ARACHNANTHE MOSCHIFERA.

ARACHNANTHE MOSCHIFERA is a very remarkable Orchid which is seldom seen in cultivation in England, and the photograph from which the annexed figure was prepared was sent to us by Hugh Dixon, Esq., of Sydney, the possessor of one of the largest and oldest private collections in Australia. It was sent to him about ten years ago by some Eastern collector, and has now flowered for the first time. The plant is rather tall and climbing in habit, and produces aërial roots on the stem, as seen in the photograph, which is much reduced. A second photograph shows a flower nearly natural size, and the dimensions are noted as three inches wide by four inches across the broadest diameter. The colour is greenish yellow, irregularly barred and blotched with deep brownish red. The

FIG. 9. ARACHNANTHE MOSCHIFERA.

shape is remarkable, and not unlike some gigantic spider. It is uncertain when the species first flowered in England, but at all events it bloomed with Messrs. Heath & Sons, of Cheltenham, in July, 1894, the plant having been imported from Java about ten years before it flowered. The plant was noted as ten feet high, and the spike two feet long, branched, and bearing fifteen flowers. It is a rather widely-diffused Malayan species, being found in Java, Borneo, the Malay Peninsula, and probably elsewhere, at moderate elevations, and thus it requires to be grown in the East Indian house, where it succeeds very well if a suitable position can be found, for, like the handsome Renanthera caccinea, it requires a little head-room. It should receive similar treatment to Aërides and its allies.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on February 11th, when a good display of Orchids was seen.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), received a Cultural Commendation for a fine plant of Ipsea speciosa, bearing six spikes of large yellow flowers.

Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), showed four fine flowers of Cattleya Trianæ Mariæ, a large and handsome form, having silvery-white sepals and petals, delicately tinged and veined with pink, and the front of the lip deep magenta crimson, with two yellow blotches in the throat.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), exhibited a handsome form of Dendrobium nobile, pure white in colour, but with a sulphur-yellow disc to the lip, thus referable to D. n. virginale; D. × euosmum Eleanor (× endocharis × nobile nobilius), a white flower, having the segments tinged with rose; D. nobile albiflorum, and a good form of D. Ainsworthii, called Gatton Park variety, having primrose-tinted flowers.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed the curious Sikkim Cirrhopetalum appendiculatum, and a pale green Eulophia species.

E. C. Bliss, Esq., Tulse Hill (gr. Mr. Parker), showed a well grown example of Cœlogyne cristata, bearing numerous flower spikes.

The Rev. F. Paynter, Stoke Hill, Guildford (gr. Mr. Cooke), showed a pretty hybrid Cypripedium, of unrecorded parentage, but it strongly resembled C. × tesselatum porphyreum, with the dorsal sepal more strongly lined.

W. M. Low, Esq., Wellesbourne, Warwick (gr. Mr. Liney), exhibited a good form of Odontoglossum × loochristiense, having yellow flowers, heavily blotched with brown.

Messrs. J. Veitch & Sons, Chelsea, staged a fine group of hybrids, for which a Silver Flora Medal was awarded. Included were Dendrobium × Wardiano-japonicum, D. × Wiganiæ xanthochilum, D. × Cordelia, the pale-yellow D. × Imogene (signatum × euosmum leucopterum), the bright yellow D. × Ophir (aureum × signatum), Phalænopsis × Hebe (rosea × Sanderiana), P. × Ariadne (× Stuartiana × Aphrodite), a dark scarlet form of Epidendrum × O'Brienianum, Cattleya × Miranda (amethystoglossa × Trianæ), Lælio-cattleya × Myra, L.-c. × Doris (L. harpophylla × C. Trianæ), Lælia × Edissa, and L. × Mrs. M. Gratrix. Lælio-cattleya × Queen Alexandra (L.-c. × bella × C. Trianæ) received a First-class

Certificate. It is a magnificent hybrid, large and of excellent shape, the sepals and petals being light rosy lilac in colour, and the lip intense ruby purple, margined with lilac, with the disc orange-coloured and some reddish lines extending to the base. An Award of Merit was given to Cymbidium × Lowio-grandiflorum, a very interesting hybrid of fairly intermediate character.

Messrs. Charlesworth & Co., Heaton, Bradford, gained a Silver Flora Medal for a fine group, containing many varieties of Lælia × Mrs. M. Gratrix and Lælio-cattleya × Charlesworthii, Odontoglossum cirrhosum, O. crispum Etoile du Congo, O. c. Chestertoni, O. × loochristiense nobilior, a yellow flower blotched with brown, having the ground work of the lip white, Oncidium splendidum, Houlletia odoratissima and the yellow H. o. xanthinum. An Award of Merit was given to Odontoglossum × Hallio-crispum heatonense, a large and handsome flower, fairly intermediate in character. The sepals were yellow, blotched with red-brown on the lower part, the fringed petals similar in colour, and the large fringed lip pale yellow with a few reddish spots. A similar award was given to C. × Lowio-Mastersianum.

Messrs. Hugh Low & Co., Bush Hill Park, showed the pure white Dendrobium nobile virginale, and Cypripedium insigne × bellatulum, which is evidently a form of Paphiopedilum × Helena, described at page 30.

Messrs. D. Dowel, horticultural sundriesmen, Ravenscourt Avenue, Hammersmith, showed an assortment of Orchid-pans, potting materials, &c.

AT the meeting held on February 25th there was an excptionally fine display of Orchids.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), staged a fine group of well-grown and profusely flowered plants, to which a Silver Flora Medal was given. It contained a beautiful series of Dendrobiums, conspicuous among them being fine specimens of D. aureum and the pale D. nobile Gatton Park variety, Epiphronitis × Veitchii, some good Odontoglossum crispum and Lælia anceps, Masdevallia cucullata, Brassia Lanceana, Phaius × Norman, Cattleya Trianæ alba, a fine example of Phalænopsis Schilleriana bearing a strong spike, and a strong young plant on the old spike of last year, and other good things.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), gained a Silver Banksian Medal for a group of well-grown things, including the rare Dendrobium Treacherianum, D. nobile burfordiense, the fine D. × xantho-centrum pallens, Masdevallia elephanticeps, M. burfordiensis, M. × Bocking hybrid, Lælia anceps Veitchiana, a well-bloomed Maxillaria arachnites, Cypripedium × Berkeleyanum (bellatulum × Boxallii), a well-coloured hybrid of intermediate character, and several other good things.

Captain Holford, Westonbirt, Tetbury (gr. Mr. Alexander), also received a Silver Banksian Medal for a good group, including some good Cypripediums, Dendrobiums, Cattleya Trianæ, Odontoglossum crispum, &c.

W. M. Appleton, Esq., Weston-super-Mare, received an Award of Merit for Cypripedium × Dowlerianum (insigne punctato-violaceum × Godefroyæ leucochilum), a fine thing, most like the latter in shape and colour, but beautifully marked with dark purple.

N. C. Cookson, Esq., Oakwood, Wylam (gr. Mr. Murray), also received an Award of Merit for Phaiocalanthe × Ruby (Phaius Sanderianus × Calanthe × Oakwood Ruby), a handsome hybrid, with rosy lilac sepals and petals, and a deep purple lip, with darker lines on the crest.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received an Award of Merit for Cypripedium × Felicity (? callosum × tonsum), a charming thing, having the dorsal sepal pale green at the base, pale lilac above, veined with emerald green, and white at the apex, and the petals and lip greenish, tinged and veined with rose.

H. Whitely, Esq., Priory Lawn, Kenilworth (gr. Mr. Cook), also received an Award of Merit for Odontoglossum crispum Mabel Whateley, a very heavily blotched form, with broad segments.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), received a Cultural Commendation for three well-flowered plants of Odontoglossum brevifolium.

G. Taylor, Esq., Margery Hall, Reigate (gr. Mr. Seaman), also received a Cultural Commendation for a fine specimen of Dendrobium speciosum, bearing ten spikes, from one to two feet long.

M. C. Cooke, Esq., Kingston Hill (gr. Mr. Buckell), sent a fine form of Odontoglossum Rossii.

D. M. Grimsdale, Esq., Uxbridge (gr. Mr. Hooker), sent a fine form of Cypripedium villosum.

F. Hardy, Esq., Ashton-on-Mersey (gr. Mr. Stafford), sent flowers of three hybrid Cypripediums.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Chapman), sent Cypripedium × Argo-Arthurianum, a finely spotted flower.

H. F. Simonds, Esq., Woodthorpe, Beckenham (gr. Mr. Day), sent a pale yellow, slightly spotted form of Odontoglossum × Adrianæ.

G. Singer, Eeq., Counden Court, Coventry (gr. Mr. Collier), sent Cypripedium × coundonensis, a fine hybrid, recalling C. × Leeanum, but heavily spotted on the broad petals.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), sent Dendrobium × Ellisii album (nobile albiflorum × Hildebrandii) a pretty white form.

W. C. Walker, Esq., Winchmore Hill (gr. Mr. Cragg), sent a pretty rosy form of Odontoglossum crispum.

Messrs. F. Sander & Sons, St. Albans, staged a remarkably fine group, which gained a Silver-gilt Flora Medal. It contained a fine series of Lycaste Skinneri, including a dozen plants of L. S. alba, Cymbidium × Wiganianum (eburneum × Tracyanum), cream-white, with purple markings on the lip, Miltonia × Bleuana, Zygopetalum × crinito-Gautieri, a fine Lælia Jongheana, Masdevallia Schrœderiana, &c. A First-class Certificate was given to Zygocolax × Wiganianus superbus (Zygopetalum intermedium × Colax jugosus), and Awards of Merit to Lælio-cattleya × Chotetiana (L. superbiens × C. Mossiæ), and Cypripedium × A. Dimmock (C. × Godseffianum × Drurii).

Mr. J. Cypher, Cheltenham, staged a very fine and well-grown group of Dendrobiums, to which a Silver Flora Medal was given.

Messrs. Hugh Low & Co., Enfield, received Awards of Merit for Odontoglossum × loochristiense enfieldense, a brightly coloured form with broad segments, and Lælio-cattleya × Chotetiana (L. superbiens × C. Mossiæ).

Messrs. Charlesworth & Co., Heaton, Bradford, sent two fine pans of Odontoglossum cirrhosum, Lælia × Mrs. M. Gratrix, L. × Coronet (cinnabarina × harpophylla), Lælio-cattleya × Sunray, and L.-c. × Digbyano-Mossiæ Heaton variety.

Manchester Orchid.

A meeting of this Society was held at the Coal Exchange, Manchester, on January 23rd last, when there was a fine display of Orchids.

J. Leemann, Esq., Heaton Mersey (gr. Mr. Edge), exhibited a magnificent form of Cypripedium × triumphans, called West Bank House var. Both the form and colour were excellent, and the First-class Certificate previously awarded to this plant was confirmed. Lælio-cattleya × Berthe Fournier var. splendens received a First-class Certificate.

R. Tunstill, Esq., Burnley, staged a nice collection of plants, several good Cypripediums being prominent. C. × Mr. W. Mostyn (parentage not given) received an Award of Merit, and a fine C. × nitens magnificum had the First-class Certificate previously given to it confirmed. Other Cypripedes in this group were C. × Thompsoni var. inversum, C. × Mons. de Curte, and C. × aureum, Monkholme var. Several good Dendrobiums were also shown, viz., D. × splendidissimum Thompson's var., D. nobile Berkeley's var., D. × dulce Oakwood var., &c. A Vote of Thanks was accorded to the group.

G. W. Law-Schofield, Esq., Rawtenstall (gr. Mr. Shill), exhibited Cypripedium insigne, New Hall Hey var., a very good and distinct form, with rich colouring in the dorsal sepal, the spots being very large. An Award of Merit was given.

Mr. J. Cypher, Cheltenham, staged a nice group of plants, to which a Bronze Medal was given. Dendrobium × Andromeda (D. × Cassiope × aureum philippinense), a flower of great purity and slightly scented, received an Award of Merit; another interesting plant from the same source being a hybrid from Cypripedium Haynaldianum × Chamberlainianum, the flower being intermediate, and partaking of the latter parent in its almost perpetual flowering habit. C. × J. Howes was also shown, and its previous award confirmed.

Messrs. John Cowan & Co., Gateacre, exhibited a good Odontoglossum, under the name of O. crispum var. guttatum xanthoglossum, which the Committee doubted, and asked to see the plant again.

Mr. John Robson, Altrincham, staged a group of Odontoglossums, for which a Bronze Medal was awarded. O. crispum Robsoni, a fine round form, rather nicely marked, was voted an Award of Merit.

A. Warburton, Esq., Haslingden, exhibited Odontoglossum × Wilckeanum Vine House var., in its way something like Mr. Thompson's O. × W. Golden Queen, but not so round. The petals were delicately fimbriated and gave a charming character to the flower. It received a First-class Certificate.

Messrs. Hugh Low & Co., Enfield, staged a nice group of various Orchids, noticeable among which were several good forms of Cattleya Trianæ. A Bronze Medal was awarded. Cypripedium × Winnianum was submitted to the Committee but was passed over.

Mr. A. J. Keeling, Bingley, had a good set of hybrid Cypripedes, among which was a hybrid between C. callosum and C. Lawrenceanum, the product being a fine, bold flower. A Bronze Medal was accorded to the group.

AT the meeting held on February 6th there was again a fine display.

W. Thompson, Esq., Stone (gr. Mr. Stevens), received a Bronze Medal for a group containing some fine pans of Sophronitis grandiflora, and a few good Odontoglossums. O. crispum Jubilee received a First-class Certificate and a Cultural Certificate.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a fine group of Cypripediums, which gained a Silver Medal. A fine plant of C. × Lathamianum, in a six-inch pot, and bearing fourteen flowers, received a Cultural Certificate.

From the Garden of the late Mrs. Briggs-Bury, Accrington (gr. Mr. Wilkinson), came Cypripedium × Beeckmanni, C. × aureum var. Pomona (Award of Merit), and a very fine C. × Lilian Greenwood (First-class Certificate).

Mrs. S. Gratrix, Whalley Range (gr. Mr. G. Cypher), sent the handsome Lycaste × Balliæ.

Messrs. Charlesworth & Co., Bradford, received a First-class Certificate for Lycaste × Charlesworthii, a handsome hybrid whose history we are unable to give.

Messrs. F. Sander & Sons, St. Albans, received a First-class Certificate for Cattleya Trianæ Our King, a handsome form with flaked petals.

Mr. J. Cypher, Cheltenham, received a Bronze Medal for a good group, consisting chiefly of Dendrobiums, with a good Lycaste Skinneri alba.

ORCHIDS IN SEASON.

SEVERAL beautiful flowers are sent from the collection of the Right Hon. Joseph Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Lælio-cattleya × Ophelia (Cattleya Bowringiana × Lælio-cattleya × elegans) is a very pretty little hybrid which is represented by a four-flowered inflorescence. The flowers much resemble the first-mentioned parent in shape and size, but the sepals are lilac-purple, the petals rather darker in colour, and the throat of the lip white, with the front lobe bright purple, which colour extends round the undulate margin as a narrow band. L.-c. × Tydea (C. Trianæ × L. pumila) is another charming thing having rose-purple sepals and petals, and a very rich purple-crimson lip, with a pale throat, on which some purple lines stand out prominently. The hybrid known as Lælia × Mrs. M. Gratrix is represented by a fine flower, having a yellow fringed lip, and the sepals and petals tinged with reddish orange. Dendrobium is represented by three charming little hybrids, namely, D. × Schneiderianum (Findlayanum × aureum), D. × Roeblingianum (nobile × Ruckeri), in which the latter parent predominates, both in shape and colour, almost to the exclusion of the other, and one called D. × Clio Chamberlain's var. (D. × Ainsworthii splendidissimum × Wardianum), a beautiful ivory-white form, with a rich maroon-crimson slightly feathered blotch on the disc.

A flower of the beautiful Paphiopedilum × Calypso (Spicerianum × Boxallii) is sent from the collection of Fred. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, by Mr. Stafford. It is comparable with P. × Lathamianum, but has a much greater suffusion of purple in the dorsal sepal. A very curious form of P. × Bartelsii (P. Boxallii × callosum) is also sent, in which the dorsal sepal, petals, and front of the lip are irregularly striped with dark brown and green, something after the fashion of P. × Harrisianum marmoratum. There is also a curious twist about the flower, as seen in some others of this affinity, which gives it a deformed appearance the reverse of pleasing.

A beautiful series of Dendrobiums is sent from the Establishment of Mr. James Cypher, Queen's Road Nursery, Cheltenham. The forms of D.

nobile are very fine, and include D. n. nobilius, D. n. Cooksonianum, D. n. majus, a richly coloured form, with an expanse of $4\frac{1}{4}$ inches, and some others. D. × Ainsworthii is represented by the type and the varieties roseum, Cypheri, a still darker form, Leechianum, marginatum, in which the rose colour is chiefly found on the margin of the sepals and near the apex of the petals, and Leeanum. The others are the fragant D. aureum, D. × Dominianum, D. × Cybele and D. × C. roseum, the latter a very richly coloured and beautiful variety. D. × Rubens var. Virgil, a fine light variety, and what is apparently a form of D. × Galatea. A flower of the rare Vanda × Charlesworthii is also sent, having been cut from an eight-flowered raceme. The white forms of Lælia anceps are said to have been fine in the collection, numbering about 400 blooms, but are now just over.

A good flower of Cattleya Trianæ delicata, from a newly imported plant, is sent from the collection of Arthur Dodd, Esq., Piedmont Villa, Aintree. It is from an importation made by Messrs. John Cowan & Co.

Several beautiful Dendrobiums are sent from the collection of R. G. Thwaites, Esq., of Streatham, including D. nobile burfordiense, remarkable for the disc-like markings on the lateral sepals, D. n. Ballianum, the pure white D. n. virginale, a good D. × Wiganiæ, the charming D. Wardianum album, D. × Cybele nobilius, D. × melanodiscus and its varieties Rainbow, Pearl, and Dido, and the pretty little D. × Andromeda, the whole forming a charming little group.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during March, on the 11th and 25th, when the Orchid Committee will meet at the usual hour, 12 o'clock, noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 6th and 20th. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

We are informed that Mr. F. Sander has taken into partnership his three sons, Conrad Fearnley, Frederick Kropp, and Louis Lohmann, and that the business will henceforth be carried on at St. Albans and Bruges under the style of Sander & Sons. Mr. J. Godseff will act as Manager, as before.

We have received the Descriptive Catalogue of Orchids of Messrs. Charlesworth & Co., Heaton, Bradford, containing a fine series of species, varieties, and hybrids.

ORCHID PORTRAITS.

CALANTHE × VEITCHII.—*Journ. Hort.*, 1902, xliv., p. 161, with fig.

CYPRIPEDIUM HAYNALDIANUM.—*Gard. World*, xviii., p. 369, with fig.

CYPRIPEDIUM × LEEANDER CAMBRIDGE LODGE VAR.—*Gard. Mag.*, 1902, p. 68, with fig.

CYPRIPEDIUM × MORGANIÆ.—*Garden*, 1902, lix, p. 75, with fig.

CYPRIPEDIUM × MRS. ALFRED MOSTYN.—*Journ. Hort.*, 1902, xliv., p. 101, with fig.

CYPRIPEDIUM × MRS. WM. MOSTYN.—*Gard. Chron.*, 1902, xxxi., p. 75, fig. 28.

CYPRIPEDIUM × VAN IMSCHOOTIANUM.—*Amer. Gard.*, xxiii., p. 103, fig. 25.

CYPRIPEDIUM × VENUS OAKWOOD VAR.—*Gard. Chron.*, 1902, xxxi., p. 91, fig. 31; *Journ. Hort.*, 1902, xliv., p. 123, with fig.

DENDROBIUM NOBILE COOKSONIANUM.—*Gard. World*, xviii., p. 364, with fig.

DENDROBIUM TAURINUM.—*Gard. Chron.*, 1902, xxxi., p. 90, fig. 30.

LÆLIA ANCEPS CHAMBERLAINIANA.—*Gard. Chron.*, 1902, xxxi., p. 71, fig. 27; *Gard. Mag.*, 1902, p. 101, with fig.

LÆLIO-CATTLEYA × QUEEN ALEXANDRA.—*Journ. Hort.*, 1902, xliv., p. 181, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

A. D. Cattleya Trianæ delicata. This particular form seems to be fairly common among importations.

R. G. T. Dendrobium nobile Sanderæ is a much darker form.

X. Y. Z. From your description, we suspect that the Rust which is running through your Cypripedes arises from an attack of yellow thrip, and the fumigations may have been ineffectual because some of the insects are concealed in the young growths. A little tobacco powder dropped in, is a useful remedy for this. We could decide better on seeing a leaf.

CRASSINODE. Odontoglossum crispum, Coelogyne cristata, Cypripedium insigne and × Leeanum, Dendrobium nobile and its hybrids, Cattleya labiata and Mossiæ would be suitable. Too many kinds should not be attempted for cut flowers, and you should aim at keeping something like a succession of bloom, and study the local market. There are other good kinds which you might be able to introduce.

R. G. C. Dendrobium nobile albiflorum, but the disc rather more purple than usual. It is small, but may improve with culture.

Photographs received, with thanks. R. R., C. C. H., A. W. H.

Received. J. M., R. G. T., R. Y., E. F. P., O. O. W., E. F. C.

The Hybridist and several notes are unavoidably postponed.

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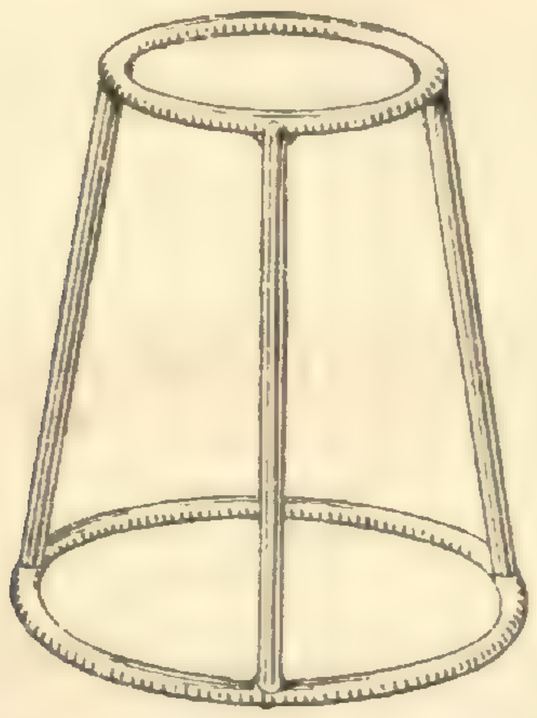

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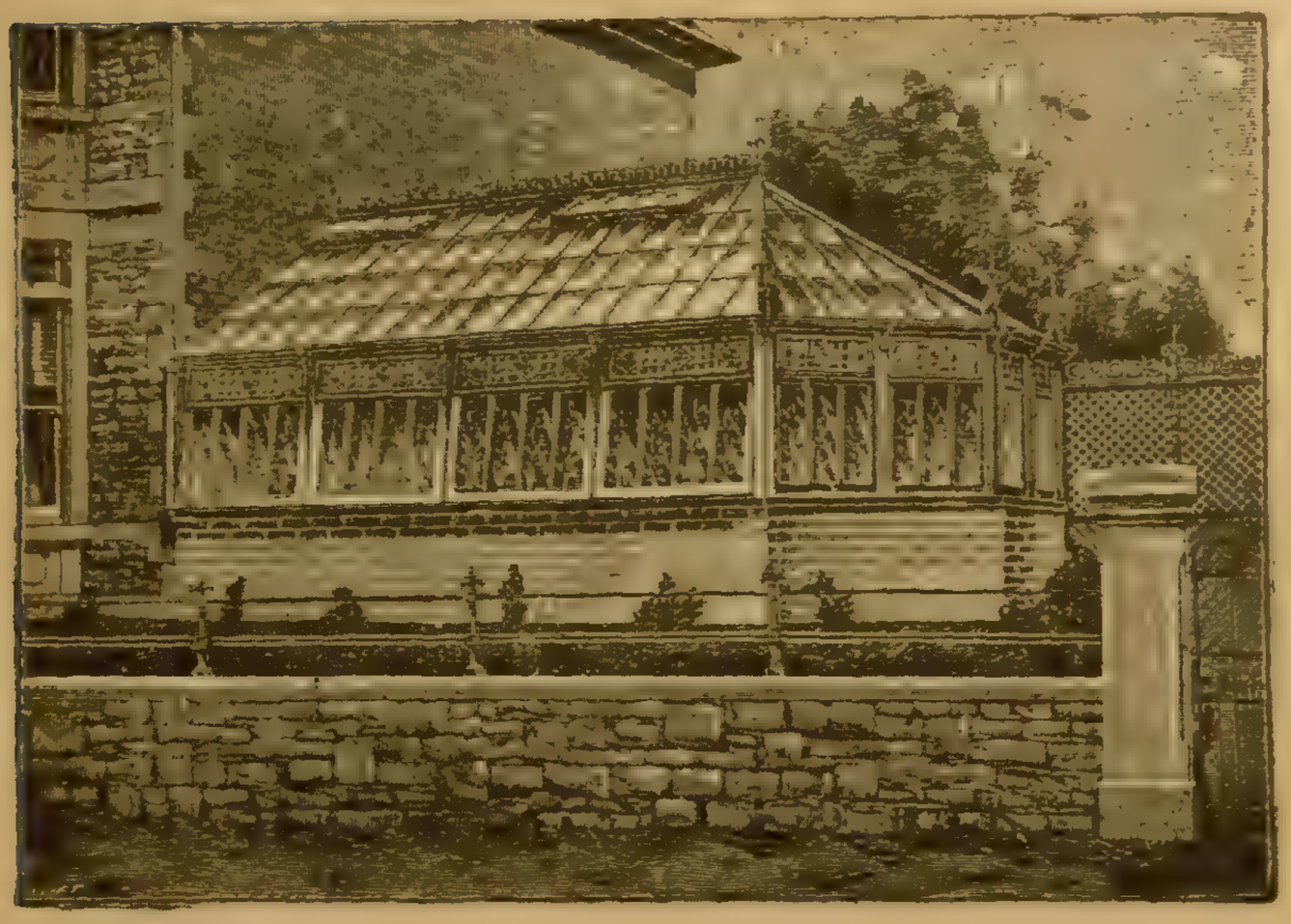

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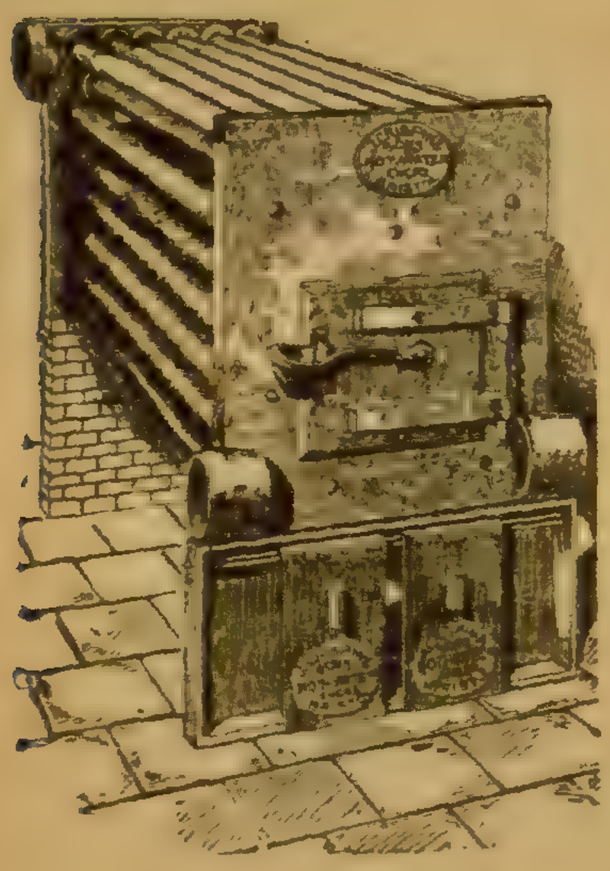

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *APRIL*, 1902. [No. 112.

DIES ORCHIDIANI.

THERE seems to be a considerable diversity of opinion as to the value of the new compost for Orchids, and I suspect that M. Linden's remark, at page 76, that the precise nature of the potting materials is not of primary importance, if the treatment is correct in other respects, is not very wide of the mark. Most of the composts used contain humus in some form or another, and humus-loving plants probably do not trouble as to the particular way in which their wants are supplied, provided always that they are not completely overlooked, in which case the grower will soon know all about it. But I cannot agree with the remark that the new compost will only be of service to those who do not know how to cultivate Orchids, for it is being tried by expert Orchid growers, some of whom report very favourably upon it for certain kinds. I think we have yet to find out to some extent how to use it, for there can be little doubt that a judicious combination with other ingredients would be more suitable for certain kinds than if used pure.

For example I am told that certain Cypripedes do not do well in it, which perhaps is not remarkable when we know that some of these plants grow in crevices of rocks, where the soil is certainly not pure leaf-mould, though traces of it are present. Many terrestrial Orchids grow naturally in a mixture of loam and leaf-mould, and there is no reason to suppose that a compost of pure leaf-mould would be an improvement, but rather the reverse. And there is the mechanical composition of the compost to consider, and its capacity for retaining the necessary amount of air and water. It is very satisfactory to find that experiments are being made, for by this means the facts are sure to come out, and the precise value of the new compost will be better understood.

The remark about sphagnum is a little difficult to follow. Living sphagnum may be an excellent material in which to resuscitate plants that

have fallen into bad health, just the same as invalids' diet is sometimes necessary for a patient in bad health, but no one would recommend the treatment to be continued permanently. Of course pure sphagnum might serve to grow certain Orchids to perfection, just as it would fail for certain others, and the fact that pure sphagnum is not generally used to-day as a compost shows that more suitable materials have been discovered.

Before leaving the subject I would suggest that some of those who have followed the new system for some time should bring a few of their plants to the forthcoming Temple Show, duly labelled, so that we can compare them with those grown by advocates of the old system. Better still it would be to see the results of the two systems tried side by side.

After speaking of the new compost, I may turn for a moment to what might not inaptly be termed the new nomenclature, as exemplified in such names as Lælia anceps Hollidayana Crawshayana, L. a. Hilliana rose-fieldensis and L. a. Amesiana Theodora, all of which have recently appeared. And I would ask seriously are such inordinately attenuated sesquipedalian names really necessary? We recognise genus, species, and variety, and I suppose the fourth addition may be taken to represent subvariety, but does this represent finality? The *Gardeners' Chronicle* report speaks of the latter as "a further extension of the fine L. a. Amesiana Crawshayana," so I suppose its full name should be Lælia anceps Amesiana Crawshayana Theodora, which would be a further extension of name, as well as of character, but for the fact that *at present* the line is drawn at four names, and something has to be left out.

Of course, the line must be drawn somewhere, but when one remembers that the specific name of some hybrids consists of three words, and that we may have both varieties and subvarieties of them, the prospect is somewhat alarming. It is a common thing nowadays to find that variations of both ranks are distinguished by the addition of two or three words each, as if one was not sufficient. Once more, Where are we going?

These names are not by any means isolated examples, but rather types of a class which is becoming too common. Some time ago an attempt was made to form an organisation for "dealing with the nomenclature of Orchids upon common sense lines" (see p. 23), but nothing has at present come of it. Whether the above names are intended as examples of the proposed nomenclature, or only to show the pressing need of the said organisation, the reader must decide. I cannot.

ARGUS.

THE HYDBRIDIST.

LÆLIO-CATTLEYA × CHOLETIANA.—This is a handsome hybrid, raised from Cattleya Mossiæ ♀ and Lælia superbiens ♂, for which Messrs. Dallemagne et Cie., of Rambouillet, received a First-class Certificate of Merit at a meeting of the Société Nationale d'Horticulture de France on February 13th last. It is dedicated to M. Cholet, chef de culture of the firm. Plants were also exhibited at a meeting of the R.H.S., on February 25th last, by Messrs. Hugh Low & Co., and Messrs. F. Sander & Co., each of whom received an Award of Merit for it. A flower has been kindly sent us by Messrs. Hugh Low & Co. It can best be compared with a greatly enlarged form of L. superbiens, somewhat modified in shape, the petals being 3½ inches long by nearly 1½ inches broad, and the lip distinctly three-lobed, 2½ inches long, and the obovate undulate front lobe 1½ inches broad. The sepals and petals are blush-pink in colour, and the lip light rose, with a large buff blotch in the throat, and the side lobes veined throughout with purple. It appears to vary somewhat in colour, for Messrs. Dallemagne exhibited a variety pallida together with the type. It is a fine thing, but owing to the strong influence of the pollen parent will probably require some room for its full development.

ODONTOGLOSSUM × BELLATULUM.—A handsome hybrid, raised by M. Charles Vuylsteke, Loochristi, Ghent, it is believed from O. Pescatorei ♀ and O. sceptrum ♂, and bearing a general resemblance to O. × Horsmanii. The flower sent has the general shape, and broad sepals and petals of the two parents, with the crest and column wings fairly intermediate. The ground colour is pale yellow, slightly suffused with brownish, the sepals having three very large broad brown blotches, and the petals one largish blotch above the middle, and very numerous smaller ones below it, also many small blotches on the lip. M. Vuylsteke has some other seedlings in flower, which conform to the type, but vary somewhat among themselves. It is interesting to find that continued progress is being made in hybridising this very beautiful genus.

ODONTOGLOSSUM × VUYLSTEKEI.—This is another of M. Vuylsteke's seedlings, and a great beauty, but unfortunately the parentage has been lost. M. Vuylsteke remarks that he has tried almost all the possible crossings between the finest Odontoglossums, and some of the seeds have got mixed. But there are some clear indications to work upon. The substance, colour, and heavy markings, the shape of the lip, its adnation to the column, and the details of the crest and column wings, all point strongly to O. triumphans as one parent, and if M. Vuylsteke had crossed this species with O. tripudians, some such hybrid as this should have been the result. This point, however, must be left for the future to clear up. The sepals and

petals are broader and shorter than in O. triumphans, and almost entirely very deep red-brown, the light yellow markings being chiefly at the apex and margin, with a narrow irregular transverse line about the middle, and one or two small blotches near the base. The lip is whitish, with about five irregular dark brown blotches. The crest consists of two largish teeth, with scarcely a trace of lateral ones, and the large column wings are somewhat toothed. We shall hope to see other seedlings as they flower, that the doubtful points may be cleared up.

DENDROBIUM × OPHIR.—A charming hybrid raised by Messrs. James Veitch & Sons, Chelsea, from D. aureum ♀ and D. signatum ♂, and quite intermediate in character. The flowers sent are good in shape, the sepals and petals bright yellow in colour, and the lip similar, with a deep yellow somewhat pubescent disc, and some traces of the aureum markings.

DENROBIUM × CYPHERI.—A pretty hybrid raised from D. Findlayanum ♀ and D. crassinode ♂, by Mr. James Cypher, of Cheltenham, and most like the former in general character. The flowers are white, tipped with light purple on all the segments, and the disc deep orange yellow, with a zone of radiating brown lines at the base, forming a sort of ring round the column.

CYMBIDIUM × LOWIO-GRANDIFLORUM.—A fine hybrid raised by Messrs James Veitch & Sons, from Cymbidium Lowianum ♀ and C. grandiflorum ♂, to which an Award of Merit was given by the R.H.S. on February 11th last, under the above name. The plant is comparable with an improved form of C. Lowianum, which it resembles in general character, with the addition of some red-brown spots on the lip, and these are situated at the base of the front lobe and apex of the side lobes, near the margin. It is in this character that the influence of C. grandiflorum is best seen. It differs from the natural hybrid C. × I'Ansoni, among other characters, in the absence of brown lines from the sepals and petals. Flowers have been kindly sent by Messrs. Veitch.

PAPHIOPEDILUM × HUNTERI.—A large and handsome hybrid sent from the collection of W. S. Steel, Esq., Philiphaugh, Selkirk, by Mr. Thompson. Its parents are P. tonsum ♀ and P. × bellatulum ♂, and it most resembles the latter in shape. The dorsal sepal measures two inches long and the same broad, and the petals $2\frac{3}{4}$ inches long, by over $1\frac{1}{4}$ inches broad. The ground colour of the flower is very light purple almost throughout, and the petals bear numerous small darker purple dots.

PAPHIOPEDILUM × NEMESIS.—A hybrid raised in the collection of Reginald Young, Esq., Sefton Park, Liverpool (gr. Mr. Poyntz), from P. × Williamsianum ♀ and P. Boxallii atratum ♂, and fairly intermediate between the parents, of which blooms are also sent for comparison. It is most like the pollen parent in shape, but lighter in colour.

PAPHIOPEDILUM × PRESTONENSE.—A hybrid raised in the collection of C. Parker, Esq., Ashton-on-Ribble, Preston, between P. × marmorophyllum ♀ and P. Argus ♂, and most resembling the latter. The dorsal sepal is rather broader than in P. Argus, and lined with green on a pale ground, the petals handsomely spotted with dark brown, and the lip intermediate.

LÆLIO-CATTLEYA × IDA.—A pretty little hybrid raised in the collection of the Right Hon. Joseph Chamberlain, Highbury, Birmingham, from Lælia harpophylla ♀ and Cattleya Lawrenceana ♂, which has just reached the flowering stage. The flower sent most resembles the Lælia in shape, but is enlarged to 4½ inches in diameter across the petals. The sepals and petals are light-buff in colour, with a faint tinge of purplish towards the margin. The lip is three-lobed, with the tube and side lobes light buff, the throat nearly white, and the recurved obovate oblong and undulate front lobe is of a pleasing light purple shade. It is smaller and lighter in colour than L.-c. × highburiensis, the corresponding hybrid with L. cinnabarina, but it is obviously undeveloped at present.

DENDROBIUM × ACHILLES.—This is a large and handsome hybrid raised in the same collection as the preceding, from Dendrobium × primulinum ♀ and D. × Ainsworthii Leechianum ♂. It most resembles the latter in general character, but the large maroon blotch is not so distinctly feathered at the margin. The sepals and petals are satiny white, very prettily tipped with light rose purple, a colour also found at the apex of the lip. Except in the presence of the large maroon blotch there is a certain resemblance to the natural hybrid D. × Pitcherianum, which is readily accounted for by the fact that both are composed of D. primulinum one-half, but the other half of D. × Pitcherianum, namely D. nobile, is replaced in the present hybrid by one-fourth D. nobile and one-fourth D. aureum.

PAPHIOPEDILUM × DOWLINGIANUM.—A very charming little hybrid raised by W. M. Appleton, Esq., of Weston-super-Mare, from P. insigne punctato-violaceum ♀ and P. × Godefroyæ leucochilum ♂, to which an Award of Merit was given by the R.H.S. on February 25th last, under the name of Cypripedium × Dowlingianum (not Dowlerianum, as reported at p. 91). A flower from another plant out of the same batch is now sent by Mr. Appleton, who remarks that although smaller than the certificated plant it shows the markings much more distinctly. It has the dwarf habit and the general shape and ground colour of the pollen parent, with rather narrower petals, and the dorsal sepal bears four rows of large purple blotches, and some smaller spots on either side, while the spots on the petals are small and numerous. It is a very promising little hybrid.

EPIPHYTES.

Notes of a lecture given at a meeting of the Kew Gardeners' Mutual Improvement Society on January 20th, 1902. By R. Allen Rolfe, A.L.S.

Epiphytes have been defined as plants which live or grow upon other plants without deriving their sustenance from them, and thus they can be readily distinguished from parasites, which absorb their nutriment direct from their hosts. It is much more difficult to draw a line of demarcation between epiphytes and terrestrial plants, for the latter are sometimes found growing in accumulations of decaying vegetable matter upon trees, and some plants seem almost independent of station if other conditions are suitable. There are, however, many plants whose sole habitat seems to be the bark of trees, and others which are rarely found except in accumulations of decaying vegetation in forks of the branches and crevices of the trunks, and to these the name epiphytes is applicable. One usually thinks of Orchids in this connection, but there are many other Orders which contain epiphytic representatives, while many Orchids are purely terrestrial.

Putting aside the lower Cryptogams, among which epiphytes are numerous, we find that the genus Lycopodium is largely epiphytic throughout the tropics. Among Ferns several genera are largely epiphytic. Bromeliaceæ is a large Tropical American Order containing many epiphytic representatives. Aroideæ also contains many epiphytes, while among Orchids we find that a large proportion of the tribes Epidendreæ and Vandeæ belong to this class, in fact they are found almost throughout the tropics where the conditions are favourable. Among Dicotyledons we find numerous epiphytes among Piperaceæ, Urticaceæ (Ficus and Dorstenia), various Cacti, Begonias, several genera of Melastomaceæ, many Vacciniaceæ, some Rhododendrons among the Eriaceæ, numerous Gesneraceæ and Rubiaceæ (the Myrmecodia group among the latter being specially noteworthy), and a few representatives of several other Orders.

Although there are many plants whose sole habitat is the bark of trees, the dead bark does not always form the base from which their nutriment is derived. The trees often only serve as supports by means of which the plants raise themselves out of darkness into light. Such plants grow from stem or branches and send down absorptive roots into the soil, some of these roots being of enormous length. Here then is another difficulty in defining the term epiphyte, for these plants are closely analagous to climbing lianas, the difference being that the climber has its anchorage in the soil of the forest floor, and climbs up into the sun and light by means of any support that presents itself, while the other class germinates on the branches, and sends down roots to the soil in search of food.

Many plants might be termed pseudo-epiphytes, for they grow in

accumulations of decaying vegetable matter, regardless of situation if the other conditions are favourable. As time goes on particles of inorganic dust collect in the forks of the branches and rents and fissures of the bark of old trees, and these get mixed with fallen leaves and twigs and particles of crumbled bark, forming a vegetable mould which is an excellent soil for a large number of plants. So much is this the case that plants which are normally terrestrial are often found in such situations. It has been well said that Nature has very few unoccupied places, and these plants have established themselves there because the conditions are favourable.

The plants which we are particularly speaking of are largely tropical and sub-tropical. In cold regions the plants that grow in the mould of the bark are for the most part mosses, liverworts and lichens, but in the tropics such situations form the rallying ground for a host of ferns and flowering plants. Small ferns are so numerous as to wreath the trunks, and with these are found Aroideæ, Orchids, Bromeliads, &c. It has been remarked that the Bromeliads chiefly ornament the forks of the trunks, while Orchids, Dorstenieæ and the various species of Rhipsalis grow on the upper surfaces of branches that ramify horizontally, while Aroideæ and Begonias take root for the most part on the surfaces of high erect trunks.

The bark itself, that is the cortical layer, dead, but not yet crumbled and mouldered into dust, forms a nutrient substratum for a series of plants of various affinity—lichens, fungi, mosses, and higher plants. Even in the case of tropical Orchids growing on a substratum of bark, if the roots are forcibly detached, little fragments of the bark will be found torn off with the rhizoids at the places where they issue from the stems. The majority no doubt nestle in the mould-filled crevices in the bark, and nourish themselves, besides, by means of special aërial roots which hang down in white ropes and threads, like a mane, from the places where the plants are situated. Some of these roots are flattened, and adhere firmly to the bark with their flat surfaces, like the roots of Phalænopsis Schilleriana, and on the under surface, behind the growing point, is a whitish fur, consisting of short, thickly packed, absorptive cells, and these adhere so tightly that it is often easier to detach small pieces of the bark than the root itself. Similar conditions have been observed in the roots of many other epiphytes. A curious fact has been observed in connection with these plants, namely, that when transferred to loose earth, devoid of humus, they languish, because their roots are unable to enter into union with a support of such loose texture, and this is true of most tropical Orchids that live upon bark. It has also been observed that the seeds of such Orchids do not germinate on a loose substratum, but when on the bark of a tree they germinate, and develop into healthy plants.

When steep rocks occur near clumps of trees it is not uncommon for the

same species of plant to occur upon both, because both are furnished with deposits of humus, on which these plants thrive. The two habitats have something in common, and hence a number of pseudo-epiphytes are indifferent to their particular situation, provided they can obtain the necessary supplies of food and moisture.

These are somewhat analagous to some of the saprophytes of deep, shady woods. The latter, although terrestrial, grow almost entirely upon humus, or decaying vegetable matter, which is so essential to them that they cannot exist in soils deficient in humus. These are mentioned to show in what respect the two groups have a common character.

(*To be continued.*)

EPIDENDRUM PUMILUM.

THIS rare and interesting little plant has again appeared in cultivation, having flowered with Messrs. Charlesworth & Co., Heaton, Bradford. It is a native of Costa Rica, and was described in 1893 (Rolfe in *Kew Bulletin*, 1893, p. 171) as follows:—"A pretty little species, allied to E. Endresii, Rchb. f. (apparently the nearest ally which has yet appeared), but very different in the shape of its leaves and the colour of its flowers. It was imported by Messrs. F. Sander & Co., St. Albans, with whom it flowered in January, 1890. Early in the present year it was also received for determination from Mr. F. W. Moore, Glasnevin Botanic Garden. The sepals and petals are light greenish yellow, also the lip, with the exception of the orange-yellow callus. The column is very pale green below, nearly white above. As in E. Endresii, the sheaths of the leaves are covered with small brown warts." It belongs to a small but ill-defined group, for which Reichenbach in 1852 proposed the generic name Œrstedella (*Bot. Zeit.*, x., p. 932), on account of its petaloid column, but afterwards united with Epidendrum (*Beitr. Orch. Cent. Amer.*, p. 37). The original species is E. centropetalum (Rchb. f. in *Bot. Zeit.*, x., p. 732), which was collected on the Chiriqui Volcano, at 7,000 feet altitude, by Warscewicz, and has rose-coloured flowers. The other two species are E. Endresii and the present one. E. centropetalum never seems to have been introduced to cultivation, but it has been figured from dried specimens, under the name of Œrstedella centropetala (Rchb. f. *Xen. Orch.*, i., p. 40, t. 17, fig. 2), together with Œ. centradenia (*l.c.*, p. 39, t. 17, fig. 1), which proves to be only a form of the same species. It would be interesting to introduce this species to cultivation, as, from its dwarf habit and rose-coloured flowers, it should prove as attractive as E. Endresii.

R. A. ROLFE.

DENDROBIUM SPECIOSUM.

THE annexed illustration represents a remarkable specimen of Dendrobium speciosum, grown in the garden of J. G. Cribb, Esq., Milton, Brisbane,

FIG. 10. DENDROBIUM SPECIOSUM.

Queensland, bearing sixty-three spikes open at the same time. The photograph has been kindly sent for reproduction by the Right Hon. Joseph

Chamberlain, M.P., who had received it from J. M. Davidson, Esq., Stanley Street, South Brisbane. The plant is growing on the branches of a tree in the open air, and thriving in a way never seen in European hot-houses. It is a native of the East Coast of Australia, and is found in various localities in Queensland, New South Wales, and Victoria. It was the first Australian Orchid introduced to England, and was obtained by Sir Joseph Banks in 1801. Lindley, in figuring the plant, in 1833 (*Bot. Reg.*, t. 1610), remarked :—" Scarcely any plant is more common than this in collections near London ; so readily is it cultivated that it rarely happens that a gardener does not succeed in keeping it, and multiplying it abundantly : tied to a stick or planted in earth, preserved in a greenhouse or stimulated in a stove, in all cases it preserves the deep green of its leaves. But it seldom flowers." He then emphasized the necessity of growing it strongly, as it was when the pseudobulbs were twice the size of those usually seen that it produced its stately and beautiful racemes of wax-like flowers. It is now known that vigorous growth, followed by a very thorough rest, are the secrets of success.

We may conclude with a very interesting paragraph from *Fitzgerald's Australian Orchids* (vol. ii), where the species is figured :—" Dendrobium speciosum, about thirty years ago, was common on all the sandstone cliffs about Sydney, and on all such outlying rocks as were large enough to afford safety from bush fires ; none are now to be found except in gardens, and every year the circle is enlarging within which it is disappearing never to return. The ' Rock Lily,' as it is called, will never again be found in the localities from which it has been removed, or multiply in those to which it has been taken. It may produce seed, but the seed never grows, and at length the old plants must die never to be replaced. I have sown millions of seeds in the most favourable situations without success, and even in places where it has not been disturbed, though the plants be numerous, very few indeed are young. On the bare or moss-covered rock (at least at the southern portion of its habitat) is the place where the Rock Lily grows, but this only because it is the only place on which its seeds vegetate, for when the plants are removed and given a liberal supply of rich mould and old manure they improve wonderfully. . . . In some places, however, where the soil accumulates about them and is composed of leaf-mould and ashes blown upon them, they may be found equally fine. There are exceptional years in which there is a general flowering of all the plants in a district, but Dendrobium speciosum never flowers freely in succeeding years."

But even Mr. Fitzgerald succeeded in germinating hybrid seeds, and keeping the young plants for some years, until they were devoured by a large hairy caterpillar, and there can be no doubt that the seeds germinate

freely enough in localities where the conditions are favourable. And we may recall the interesting hybrid D. × Kingiano-speciosum from the collection of Sir Trevor Lawrence, which was described at page 107 of our fourth volume.

MENDEL'S LAW OF INHERITANCE.

MENDEL'S "Experiments in Plant Hybridisation" (see pp. 11, 45) though not directly concerned with Orchids, assumed a special importance because of an opinion expressed that his so-called "Law" would be found to be of general application. An important paper on the subject, by Dr. W. F. R. Weldon, has appeared under the title "Mendel's Laws of Alternative Inheritance in Peas" (*Biometrica*, i, pp. 228-254, tt. 1-2), in which it is shown that Mendel's results do not always agree with those obtained by other observers, nor yet with the history of some well-known commercial varieties of Pea. Even Mendel's "dominant" and "recessive" characters work out differently for other varieties. The question is gone into in detail, and there are two beautiful photographic plates showing the variations of (1) colour and (2) form in six or seven well-known varieties. We cannot enter into details, as the subject does not come within our scope, but the conclusions arrived at are important, in view of the opinion that Mendel's Law would be found to be applicable to hybrids generally.

Taking the net results of the various experiments and observations summarized, Weldon concludes by saying—"I think we can only conclude that segregation of seed-characters is not of universal occurrence among cross-bred peas, and that, when it does occur, it may or may not follow Mendel's Law. The law of segregation, like the law of dominance, appears therefore to hold only for races of particular ancestry. The fundamental mistake which vitiates all work based upon Mendel's method is the neglect o ancestry, and the attempt to regard the whole effect upon offspring, produced by a particular parent, as due to the existence in the parent of particular structural characters, while the contradictory results obtained by those who have observed the offspring of parents apparently identical in certain characters show clearly enough that not only the parents themselves, but their race, that is, their ancestry, must be taken into account before the result of pairing them can be predicted."

This objection should not apply to hybrid Orchids, obtained in the first place from distinct wild species, and an examination of these in the light of Mendel's law would be interesting. The difficulty of applying the "Law" to those hybrids which reproduce themselves true from seed has already been pointed out, and it seems possible that there may be another explanation of the facts.

THE HISTORY OF ORCHID CULTIVATION.

(*Continued from vol.* ix. p. 336.)

We have now reached a very important period in the History of Orchid Cultivation, for the year 1841 witnessed the inauguration of the *Gardeners' Chronicle*, under the editorship of Dr. Lindley, and although Orchids did not at first occupy a very prominent place in its pages, it gradually became the medium in which most of the novelties were described, and its influence in other ways can hardly be over-estimated. The first number appeared on January 2nd, and we find notices of Oncidium pectorale, Catasetum laminatum, and Dendrobium macrophyllum (*i.e.*, D. superbum), from the *Sertum Orchidaceum*; a short note in the Calendar of Operations, in which the use of sphagnum is recommended; and an account of a meeting of the Horticultural Society on December 1st previous, in which we find among the exhibits:—"Some beautiful specimens of Orchidaceous plants from Mrs. Lawrence; especially a Zygopetalum Mackaianum with thirteen spikes of flowers, and a noble plant of the old Epidendrum nutans. The latter, although its flowers are green, was, from the beautiful state of health, one of the most interesting objects in the room. A Silver Knightian Medal was assigned to these plants."

The following week we find an account of two small snails which were injurious to Orchids, particularly to Stanhopeas, hiding "by the dozen in the large bracts which enclose the buds," but which might be trapped by means of cabbage leaves. On January 14th is given a plan and elevation of the "Orchidaceous House and Stove Aquarium" at Ealing Park, the residence of Mrs. Lawrence, mother of our present worthy President of the R.H.S. It was fifty feet broad, and consisted of three spans, and was heated by hot-water apparatus, "constructed by J. Weeks, junior, in 1839, and has been found to answer well." The Orchids were cultivated in baskets and on logs of wood, and suspended from the roof. Mr. Butcher, the gardener, refers to the many prizes which have been awarded to specimens from the collection, and then describes the method of treatment, using the genus Zygopetalum as an example. The only Orchid illustrated in the volume is Megaclinium Bufo, or the Toad Orchis, under the heading of "Vegetable Reptiles." It had been introduced from Sierra Leone, by Messrs. Loddiges, and a strange creature it is according to the description. It is not a little remarkable that at the present day nothing further is known about it.

At page 564 is given a figure of an Orchid basket, made of elder wood with the bark on, which had been found useful for cultivating Stanhopeas in. At page 87 we find an account of fine specimens of Odontoglossum

elatum and Epidendrum aloifolium in the collection of Mr. Harris, at Kingsbury. We have no idea what the former can be, but it is noted that "the flowers are very handsome, the sepals and petals being of a yellowish green, richly blotched with brown, and the lip of a delicate light pink colour."

Under the heading of "Orchidaceous Epiphytes," we find a series of three very interesting articles by Jas. Bateman, Knypersley. The author remarks:—"The following table has been compiled from a note-book, in which I have been in the habit of entering the names and characters of what appeared to be *first-rate* Orchidaceæ (I use the phrase in its popular sense), as they successively showed themselves in the collections of this country. Embracing, as these entries do, a period of ten years, they may. perhaps, possess a sort of historical interest in the eyes of the veteran cultivator, while to the mere novice they will serve as landmarks in the formation of a collection." The list refers to the period subsequent to 1831 only, in which the writer began his collection. It includes 147 species, of which 99 came from the new world (44 being Central American), and only 43 from the old. Taking the collections individually in which the species appeared, that of Messrs. Loddiges came first, with 31 species, the writer's own second, with 17, and Mr. Barker's third, with 10. "The number of collectors," it is remarked, "would seem to have increased as rapidly as the number of species in cultivation; in 1830 there were not more than five or six collections of the slightest note, and in these were barely 100 species; the collections cannot now be counted, nor the species in their possession, but the latter may be estimated at 1,000 at the least. It might be mentioned as a curious fact that the *genera* now in cultivation are more numerous than were the *species* of ten years back; nay, the genus Epidendrum alone now musters a greater array of species than were contained, at the period to which I refer, by all the other genera combined. As such a multitude of species, of course, comprehends many that are worthless, so it must necessarily lead to a selection of the best, for in a majority of cases the space devoted to Orchidaceæ would be quite inadequate to the accommodation of so large a family as the order has latterly become."

It may be interesting to summarise the *Gardeners' Chronicle* report of a meeting of the Horticultural Society held at the Society's Garden, at Chiswick, on June 12th, 1841—there were two others, on May 15th and July 10th. After speaking of other plants, the report proceeds:—"It now becomes necessary to say that, if judgment were to be pronounced without the exclusion of any plants because they are scare or expensive, the Orchidaceæ, so largely contributed to the exhibition, totally eclipsed every other class. Indeed the collection of this enchanting race was all that

could be wished by their most ardent admirers. Above all the rest, both in position—for it was suspended from the roof of the tent—and in splendour, shone a magnificent plant of Dendrobium fimbriatum, which cast on all sides a rich and almost metallic glow from its golden blossoms; so charmingly fringed round the labellum. Literally hundreds of flowers clothed both the old and young stems of this specimen, which was not more remarkable for its inflorescence than for the regular manner in which its half pendulous stems were arranged round the basket in which it was planted. Messrs. Rollisson, of Tooting, furnished this plant." Messrs. Rollisson also exhibited Dendrobium cœrulescens (a form of D. nobile), Epidendrum alatum, Leptotes bicolor, and an unnamed species both of Cyrtopodium and Acropera. Mr. Mylam, gardener to S. Rucker, Esq., brought Aërides odoratum, with nearly twenty racemes, "the much-coveted" Phalænopsis amabilis (now P. Aphrodite), Saccolabium guttatum, bearing five long racemes, Oncidium Lanceanum, Chysis aurea, two Stanhopeas, Vanda teres, and Cattleya Mossiæ. George Barker, Esq., of Birmingham, exhibited Cattleya Aclandiæ, Epidendrum aciculare, Cyrtochilum stellatum (now Miltonia flavescens), Oncidium pulchellum, Maxillaria cristata (now Paphinia), and Odontoglossum cordatum. "The long-looked for Schomburgkia tibicinis, having at length flowered in the stove of Sir T. Acland, was exhibited by Mr. Craggs." Peristeria pendula was shown by Mr. Edmonds, gardener to His Grace the Duke of Devonshire, Chiswick, and Oncidium flexuosum, "evincing superior cultivation," came from Mr. Bruce, gardener to B. Miller, Esq. The notice concludes: "In these notices of Orchidaceæ, and in all that have preceded them, it has been the intention to particularise and briefly describe only such as are worthy of general cultivation and regard, and of which the specimens shown furnish proof that they can be easily or successfully managed."

These extracts give us some very interesting glimpses into the state of Orchid culture at this period, but we must pass on, and it may be added that as progress now became so rapid, and events followed each other with such rapidity, we shall only be able to glance at a few of the more important details, and thus indicate in some measure the steps by which the "cult" has attained its present development.

The *Botanical Register* for 1842 commenced with a description and figure of Cattleya granulosa, a new species of which a single specimen was said to exist in the garden of the Horticultural Society. It is said to have been sent by Mr. Hartweg, from Guatemala, but this is evidently a complete mistake, for the species has long been known as a native of Brazil. The remarkable Cirrhopetalum Medusæ was also described and figured for the first time (t. 12), when Lindley remarked, "Certainly, if ever there was a Medusa this must be her prototype, before her Gorgon-

ship's beautiful tresses were changed into serpents ; nor are wanting the scales with which her body was safely guarded. We believe that this young lady was carried out of harm's way into the ocean of India by Neptune, and that all they tell us about Perseus having cruelly killed her is a fable ; for is not here the proof?" The species was introduced from Singapore by Messrs. Loddiges. The next plate (t. 13) shows Maxillaria cruenta (now known as Lycaste). It was introduced from Guatemala by Mr. Skinner, and flowered with Sir C. Lemon at Carclew. Three other remarkable novelties which we select for mention from this volume are Cypripedium barbatum, Lycaste Skinneri, and Odontoglossum citrosmum.

Cypripedium barbatum (t. 17) was described as "a native of the Straits of Malacca, where Cuming found it on Mount Ophir," and the author observed, " Messrs. Loddiges are, as far as I am aware, the only persons who have flowered it." Here, too, we find the historical passage by Lindley :—" There is something in the habit of the Indian Lady's Slippers so peculiar, that it was for a long time expected that they would be found to possess characters sufficient to separate them from their allies." Curiously enongh Lindley went on to point out the differences in habit between the four types—the European and North American, the Indian, the singular Tropical American C. Lindleyanum, and the no less curious C. palmifolium, with the habit of a Sobralia—which are now recognised as forming perfectly distinct genera, though he failed to discover the peculiarities of organisation between them which are now known to exist.

Maxillaria Skinneri (now known as Lycaste), which had been described in 1840 from dried specimens, now showed itself in its true character, and Bateman remarked :—" This, the *facile princeps* of all known Maxillarias, has at length flowered in the collection of the Rev. John Clowes, with a vigour and beauty that could not be exceeded in its native parents. . . . It is a native of Guatemala, and is another of the brilliant discoveries of the gentleman to whom I have ventured to dedicate it."—*Botanical Register*, 1842, Misc., page 10.

The beautiful Odontoglossum citrosmum, which had long been known to science, also flowered in cultivation for the first time, and Lindley remarked :—" This was the most remarkable novelty exhibited at the garden of the Horticultural Society in July, 1842. It had been given by Mr. Barker to T. Brocklehurst, Esq., of the Fence, from whose garden it was contributed."—*l.c.*, p. 60. It is figured at t. 3 of the next volume.

In the *Gardeners' Chronicle* for 1842 we find very little of importance relating to Orchids, excepting reports of Shows, and not a single figure, but one or two notes are suggestive. In a reply to J. T., Plymouth (page 97), as to the treatment of newly imported Orchids, we find a few general directions, concluding with the remark :—" There is no book on

the cultivation of Orchidaceous plants." We also find an interesting note by C. W. on Cypripedium insigne :—" Allow me to call the attention of your readers to a plant calculated to ornament the drawing-room during the cheerless winter's gloom, and one so easily managed as to be within the reach of most persons possessing only a limited garden. I allude to the Cypripedium insigne. On the 1st of December [1841] I placed eight plants in the drawing room : there they revelled in the greatest luxuriance for three successive months, and when taken out in March were as fresh and vigorous as the day they were put in."

(*To be continued.*)

CULTURE OF ORCHIDS IN SPHAGNUM.

In connection with the remark at page 76, that M. J. Linden used to cultivate his Orchids in living sphagnum, it may be interesting to know when and by whom sphagnum moss was first used as a potting material for Orchids. In the very first number of the *Gardeners' Chronicle* (issued January 2nd, 1841), we find at page 8 a Calendar of the week's operations, signed by Joseph Paxton, Chatsworth, in which the following occurs :—

"Stoves.—Re-pot Orchidaceous plants as they become dry enough for removal. Bog-moss (sphagnum) will be found the best material to pot them in, except the kinds which require raising above the pots, as Stanhopeas, for which peat must be used ; give air and water according to the state of the weather."

On March 6th following, we find further details on the subject (page 153), as follows :—

"S. inquires what kind of Orchidaceous plants Mr. Paxton pots in sphagnum, as alluded to at page 8. Mr. Paxton's answer is the following :—'It is now about twelve months since I commenced using sphagnum for Orchidaceæ ; since then, in consequence of the plants thriving excessively in it, I have been gradually adopting it for various kinds, and in every case with benefit. Even Stanhopeas, Gongoras, and others having pendulous flowers, and which it is the practice to build above the pots, I would recommend to be planted in wire baskets, and suspended in preference. In potting with this moss, the plants may be elevated considerably above the surface of the pots, by which means the principal mass of roots is prevented from adhering to its porous sides, and saved from injury in shifting. In a word, I recommend sphagnum, mixed with potsherds, in preference to anything I have hitherto seen used for the growth of Orchidaceæ.'"

It would thus appear that the practice originated with Mr. Paxton, in the collection of the Duke of Devonshire, at Chatsworth, in 1840.

LYCASTE BREVISPATHA.

THERE is a pretty little Lycaste generally cultivated under the name of Lycaste Lawrenceana, whose portrait is now reproduced from a photograph kindly sent by Frau Ida Brandt, of Zurich. Its correct name is a matter of some uncertainty. In the *Allgemeine Gartenzeitung* for 1851 (xix., p. 217), it is described under the name of Maxillaria (Lycaste) brevispatha, Klotzsch, from a plant which flowered in the collection of Herr Nauen, and which had been collected in Guatemala, by Warscewicz. It was described as being allied to Maxillaria (Lycaste) leucantha, Klotzsch, but differing in having the bract shorter than the ovary, and other characters. Again we find it figured and described, by Lindley, under the name

FIG. 11. LYCASTE BREVISPATHA.

of Lycaste leucantha, Klotzsch (*Paxt. Fl. Gard.*, ii., pp. 37, 38, fig. 151, 152), but it is not the Maxillaria (Lycaste) leucantha, Klotzsch (*Allg. Gartenz.*, 1850, p. 402), which is what Lindley intended. He observed that it was "remarkable for numerous varieties in the size and colour of the flowers. The first that blossomed, being quite white, received the provisional name of L. candida, now superseded by that of leucantha. . . . During the present spring others have appeared . . . . some of which, instead of being colourless, are richly stained with crimson." On the strength of the remark just made, the species has since been called L. candida, but the name, as applied to this species, is quite misleading, and under the circumstances

should, I think, be discarded. I am uncertain whether Lindley's note is later than that of Klotzsch, for the volume is dated 1851-2, and it makes a complication that Klotzsch reduced Lindley's Lycaste to a section of Maxillaria. The paper containing Klotzsch's description is dated July 12th. L. Lawrenceana, according to Reichenbach (*Walp. Ann.*, vi., p. 604), appeared subsequently as a garden name. Lindley's original remark that it is among the dwarfest in the genus is still applicable, and some of its forms are very brilliantly coloured.

R. A. R.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on March 11th, when there was a particularly fine display of Orchids.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), received a Silver Flora Medal for a fine group of well-grown plants, including Dendrobium × burfordiense, D. × Rolfeæ, D. × Dominianum, D. × Cybele, D. nobile Ballianum, D. × melanodiscus Rainbow, a fine example of D. barbatulum, with over thirty fine spikes; the rare D. superbum Burkei, a finely-flowered specimen of D. × specioso-Kingianum, Masdevallia leontoglossa, M. triangularis, M. × Hincksiana, the orange M. × xanthino-Veitchiana, and the bright yellow Sophrolælia × Marriottiana flavescens.

F. A. Rehder, Esq., Gipsy Hill, S.E. (gr. Mr. Norris), was awarded a Silver Flora Medal for a very good group of Dendrobiums, including a fine lot of varieties of Dendrobium nobile, D. × Socius nobilior, D. × Sibyl, D. × xanthocentrum, D. × splendidissimum grandiflorum, and the fine and richly coloured D. × Magda (nobile nobilius × melanodiscus), having the deep purple colouring of the former parent and the broad petals of the latter.

H. Whateley, Esq., Priory Lawn, Kenilworth (gr. Mr. Cook), received an Award of Merit for Lælio-cattleya × purpurato-Schilleriana Whateleyæ, a pretty hybrid most resembling C. Schilleriana in general character. The sepals and petals are tinged with light purple; the side lobes of the lip white veined with purple, the front lobe ruby crimson, and the disc yellow with some dark lines.

J. Ebner, Esq., Beckenham (gr. Mr. Scutcher), showed Cypripedium villosum, and a distinct hybrid between it and C. × Lathamianum, also Odontoglossum mirandum, the latter receiving a Cultural Commendation.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), received a Cultural Commendation for a fine specimen of Odontoglossum pulchellum majus, with sixteen spikes.

R. I. Measures, Esq., Camberwell (gr. Mr. Chapman), was awarded a Botanical Certificate for the rare little Masdevallia minuta.

J. Colman, Esq., Gatton Park (gr. Mr. Bound), sent a plant of Dendrobium × Wiganianum, called Gatton Park variety.

F. Hardy, Esq., Ashton-on-Mersey (gr. Mr. Stafford), sent three hybrid Cypripediums.

Mrs. Haywood, Woodhatch, Reigate (gr. Mr. Salter), showed two well-flowered hybrids, Dendrobium × Aspasia superbum and D. × splendidissimum grandiflorum.

H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood), sent a pretty form of Odontoglossum × aspersum, O. Hallii leucoglossum, and O. × loochristiense Rosslyn variety, having a fine canary yellow flower.

Baron Sir H. Schröder, The Dell, Englefield Green (gr. Mr. Ballantine), exhibited Odontoglossum crispum Truffautianum, a fine white form, bearing irregular clusters of red brown blotches in the middle of the segments.

G. Singer, Esq., Coundon Court, Coventry (gr. Mr. Collier), exhibited Phalænopsis × intermedia Portei, P. × i. Brymeriana, P. × Lady Rothschild, Cypripedium × Olivia, Cattleya Trianæ Theodora, C. T. alba, C. T. Cassandra, and C. T. coundonensis, a fine broad-petalled variety, with purple-rose sepals and petals, the front lobe of the lip crimson, and the disc orange.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Lofthouse), showed the handsome Odontoglossum crispum Lindeni.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Lælio-cattleya × Gottoiana Westfield variety, a form with pale buff sepals and petals marked with light purple, and a rich purple lip.

Messrs. J. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for a fine group of hybrids, containing Epidendrum × O'Brienianum, a very brilliant form, Lælio-cattleya × Antimachus Cœnea, L.-c. × Pallas, L.-c. × Myra, Cypripedium × eximium, C. × Leonidas, the richly-coloured C. × Euryades splendens, some Dendrobiums, &c. A First-Class Certificate was given to Lælia × Digbyano-purpurata, var. Edward VII., a very handsome form, having a very large expanded lip, primrose yellow at the base, and tinted with rose about the middle, which fade to nearly white at the margin. A white band also occurs above the yellow, from which radiates some rose-purple veining.

Messrs. F. Sander & Sons, St. Albans, received a Silver Flora Medal for a fine group, consisting chiefly of varieties of Phaius × Normani, P. × Marthæ, and other hybrid Phaius, together with Cymbidium eburneum,

Lælio-cattleya × Lucia superba (C. Mendelii × L. cinnabarina), and L.-c. × Edwardi (L. cinnabarina × C. Hardyana), having the petals and sepals bronzy orange tinged with dark red, and the lip ruby-crimson.

Mr. J. Cypher, Cheltenham, was awarded a Silver Flora Medal for a fine group of Dendrobiums, including D. × Aspasia, D. × Ainsworthii, D. × Rubens magnificum, D. nobile nobilius, D. n. Statterianum, D. n. murrhiniacum, D. n. Fisheri, Odontoglossum Hallii, Lælia Jongheana, varieties of Cattleya Trianæ, Cypripediums, and others. An Award of Merit was given to Dendrobium × Apollo album (nobile pulcherrimum × splendidissimum grandiflorum), having beautiful white flowers with a claret-purple disc to the lip.

Messrs. H. Low & Co. showed the pretty Lælio-cattleya × Lucasiana.

Messrs. Stanley, Ashton, & Co., Southgate, exhibited a good group containing Cymbidium Lowianum, C. × eburneo-Lowianum, some good Lycaste Skinneri and L. S. alba, Cochlioda Noetzliana, Dendrobium × Ainsworthii, D. × Vannerianum, Lælia harpophylla, L. flava, and others.

At the meeting held on March 25th, the display of Orchids was remarkable, and the awards included no less than four First-class Certificates, nine Awards of Merit, and seven Medals to groups.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for a fine group, including Vanda cœrulea, V. suavis, Dendrobium atroviolaceum, D. nobile, and others, Sophronitis grandiflora, Cymbidium eburneum, Epidendrum alatum, Odontoglossum Pescatorei, O. × Andersonianum, &c. Awards of Merit were given to a richly-coloured form of the latter, called O. × Ruckerianum Pittianum, and to Cypripedium × William Pitt, suggested to be a hybrid between C. Dayanum and C. × Tautzianum, though the point requires confirmation.

Captain Holford, Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for the handsome Odontoglossum × Adrianæ Mrs. Robert Benson, and Awards of Merit for O. × loochristiense Lady Victoria Grenfell and the richly-coloured Sophrolælia × læta Orpetiana. He also showed Dendrobium × Sibyl magnificum in fine condition.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), received a Silver Banksian Medal for a group of well-grown Dendrobiums, including D. nobile nobilius, D. × Rubens grandiflorum, D. × pallens, and several fine varieties of D. × Ainsworthii. An Award of Merit was given to a good plant of D. × Rolfeæ roseum.

Lord Rothschild, Tring Park (gr. Mr. Hill), received an Award of Merit for the handsome Cattleya × Parthenia vernalis.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), also received a

Silver Banksian Medal for a fine group, containing good plants of Cymbidium × eburneo-Lowianum, with its two parents, Cœlogyne cristata alba, Cypripedium villosum, and some good Odontoglossums.

C. Carruthers, Esq., Reigate, showed a good orange-coloured form of Odontoglossum triumphans.

Mrs. Heywood, Woodhatch, Reigate (gr. Mr. Salter), sent a pretty hybrid called Dendrobium × Wardiano-Hildebrandii.

W. B. Latham, Esq., Botanic Gardens, Edgbaston, Birmingham, sent a good Cypripedium × Deedmanianum, and two forms of C. × edgbastonense (C. × nitens × Chamberlainianum), a promising hybrid of intermediate character.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), sent an interesting group of rarities, including Cœlogyne sparsa, C. pulchella (Rolfe), a pretty white-flowered species allied to C. prolifera, with a blackish brown spot on the lip, Cirrhopetalum fimbriatum with fourteen spikes, Odontoglossum Dormanianum, together with good forms of O. crispum, O. × Andersonianum, and Cattleya Trianæ.

F. W. Moore, Esq., Royal Botanic Garden, Glasnevin, sent the rare Gongora Charontis.

G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, Glostershire (gr. Mr. Morris), sent a handsome hybrid called Phaio-Cymbidium × chardwarense, supposed to have been derived from Phaius grandifolius and Cymbidium giganteum. The flowers much resembled Phaius × Ashworthianus, being yellow, faintly striped with purple-red.

Messrs. James Veitch & Sons, Chelsea, staged a handsome group, which gained a Silver Flora Medal. It contained the handsome Dendrobium × Socius, D. × Ophir, D. × Stratius, the handsome Cymbidium grandiflorum, Epidendrum × Clarissa, Cypripedium × Madiotianum, a pretty little species of Cheirostylis with white fringed flowers, Sophronitis grandiflora, Cattleya × intertexta, the handsome Lælio-cattleya highburiensis, L.-c. × Picanus (L.-c. × Pallas × L. cinnabarina), &c. First-class Certificates were given to L.-c. × Digbyano-Schrœderæ, a very beautiful light form, and to L.-c. × Rosalind Prince of Wales, and an Award of Merit to L.-c. × Myra Princess of Wales.

Messrs. F. Sander & Co., St. Albans, also received a Silver Flora Medal for a fine group, including the rare Cycnoches pentadactylon, two good forms of Miltonia × Bleuana, some good forms of Phaius × Normaniana P. × Marthæ, the rare Vanda Parishii Marriottiana, Lycaste Skinneri, Odontoglossum Hunnewellianum, O. × Coradinei, O. × Adrianæ, the rare O. × Horsmanii, O. luteopurpureum with a spike of sixteen flowers, and others. Cattleya amethystoglossa Sanderæ is a charming albino of the species, which gained a First-class Certificate.

Messrs. Charlesworth & Co., Heaton, Bradford, staged another fine group, which gained a Silver Flora Medal. It contained some good forms of Phaius × Normani, Epilælia × Sylvia (L. cinnabarina × Epidendrum Cooperianum), an interesting hybrid most like the latter in shape, the sepals and petals orange-red in colour, and the lip rose-purple with a pale centre, Angræcum Sanderianum, Odontoglossum triumphans Wilsoni, identified by W. Marshall, Esq., with a plant for which he received a First-class Certificate in 1889, O. × Adrianæ Duchess of Cornwall, a beautiful yellow spotted flower, Dendrobium × Ainsworthii intertextum, D. × Apollo album, Cypripedium × Berkeleyi (bellatulum × Boxallii), C. × Godiva (Chamberlainianum × niveum), &c.

Messrs. Stanley, Ashton & Co., Southgate, received a Silver Banksian Medal for a good group, containing a fine series of Lælia Jongheana, with about forty flowers, and some good Lycaste Skinneri and Cymbidium × eburneo-Lowianum.

Messrs. Linden & Co., Brussels, received Awards of Merit for Cypripedium Lawrenceanum, and for Odontoglossum crispum Miss Lucienne Linden, a richly coloured variety, having a very large vinous-purple blotch on each sepal, and some smaller spots on the petals and lip. They also sent good forms of O. crispum, and O. × loochristiense, a good Dendrobium Wardianum, and Phalænopsis amabilis Rimestadiana, the group receiving a Vote of Thanks.

Messrs. Hugh Low & Co., Bush Hill Park, sent the handsome Lycaste × Balliæ, Lælia × Iona, Cypripedium × Shillianum, Cattleya Schilleriana, C. Mendelii, and a good light form of C. Trianæ.

M. Fl. Claes, Brussels, showed the handsome Odontoglossum crispum Trianæ, O. × Andersonianum, and good forms of O. × Adrianæ and O. crispum.

MANCHESTER ORCHID.

At the meeting of the Manchester Orchid Society held at the Coal Exchange, Manchester, on February 20th, Awards of Merit were given to Cypripedium × nitens Arle Court var., from O. O. Wrigley, Esq., Cattleya Trianæ W. Bass, from W. Bass, Esq., and Dendrobium × Schneiderianum from Mr. W. Holmes.

The plant called Lycaste × Charlesworthii, to which a First-class Certificate was given at the previous meeting (see page 94), is now noted by Mr. Weathers as L. × Balliæ.

There was a very fine display at the meeting held on March 6th, the awards including one Gold Medal, ten First-class Certificates, and six Awards of Merit.

A. Warburton, Esq., Haslingden, received a Gold Medal for the splendid Odontoglossum crispum Luciani, and a First-class Certificate for O. c. Mrs. A. Warburton.

S. Gratrix, Esq., Whalley Range, gained First-class Certificates for Dendrobium × Backhousei, D. × Bryan, D. × Apollo album, and D. × Cybele, and Awards of Merit for D. nobile West Point var., Cypripedium × Minos Gratrix's var., and C. × Prince of Wales (Lawrenceanum × niveum).

W. Thompson, Esq., Stone, received a First-class Certificate for Odontoglossum × aspersum, and Awards of Merit for O. × loochristiense nobilior, O. Rossii majus var. Amesiæ, and Cypripedium × Miss Louisa Fowler.

First-class Certificates were also given to Odontoglossum × loochristiense, from Mrs. Gratrix, Whalley Range; Dendrobium nobile Amesiæ, from Dr. Hodgkinson, Wilmslow; Cypripedium × Olivia, from Messrs. Hugh Low & Co., Enfield; and to Cattleya × Rosalind superba, from the collection of the late Mrs. R. Briggs-Bury, Accrington.

At the meeting held on March 19th, the display was again superb, the awards granted being ten First-class Certificates, eight Awards of Merit, and one Cultural Certificate.

R. Ashworth, Esq., Newchurch, received First-class Certificates for Odontoglossum crispum Queen Alexandra, O. c. Coronation, and O. × Andersonianum magnificum, a Cultural Certificate for Dendrobium × Cassiope, and an Award of Merit for Odontoglossum × hybrid.

W. Thompson Esq., Stone, received Awards of Merit for Cypripedium × Euryades splendens and Odontoglossum crispum Cristopher.

S. Gratrix, Esq., Whalley Range, received a First-class Certificate for Lycaste Skinneri alba superba, and an Award of Merit for L. amabilis.

M. Wells, Esq., received First-class Certificates for Odontoglossum × Adrianæ Wellsiana, and Lælio-cattleya × Broomfield var.

Messrs. Hugh Low & Co., Enfield, received a First-class Certificate for Cattleya Trianæ Amesiana, and an Award of Merit for Lælio-cattleya × Lucasiana.

Mr. A. J. Keeling, Bingley, received Awards of Merit for Dendrobium × pallens and D. × Ainsworthii amœnum.

First-class Certificates were also given to Odontoglossum crispum Sherlock Holmes, from J. Leemann, Esq., Heaton Mersey; Dendrobium nobile album, from Mr. J. Cypher, Cheltenham; and Cypripedium × Minos Young's var. from the collection of the late Mrs. R. Briggs-Bury. An Award of Merit was also given to Odontoglossum × Adrianæ Lady Gladys, from Messrs. Charlesworth & Co., Bradford.

CATTLEYA TRIANÆ ABNORMAL.

A REMARKABLE abnormal form of Cattleya Trianæ is here reproduced from a photograph sent by Dr. A. W. Hoisholt, of Stockton, California. He writes :—" About four years ago I purchased a case of Cattleyas, containing a mixture of C. Trianæ, quadricolor, and Warscewiczii, collected by Mr. Lager in Columbia [Of course not collected together.—ED.]. Among them was a small plant with a couple of still smaller ones—apparently seedlings —at its base. The larger piece has gradually increased in size, and at the beginning of this year it developed a spike bearing a single flower, which differs in form and colour from any Cattleya I have seen. Its petals showed

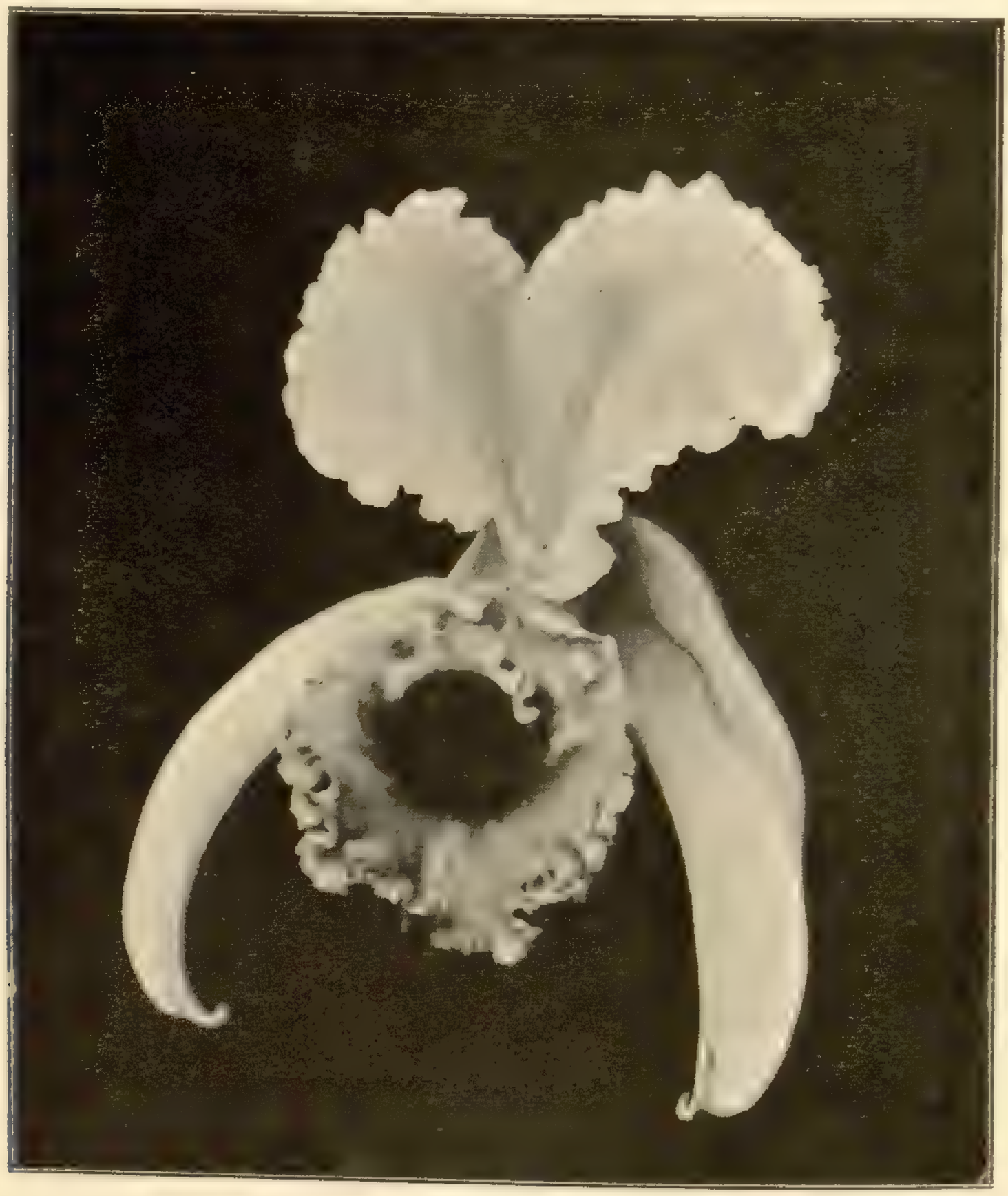

FIG. 12. CATTLEYA TRIANÆ ABNORMAL.

a frilled margin, measured about three inches in their greatest diameter, and were light blush in colour. They were placed perpendicularly to the lip, like the wings of a butterfly when at rest. The lip was rolled up as much as in Lælia purpurata, while the edges were beautifully fluted, and the colour a peculiar tint of claret-crimson, with a faint streak of maroon." The dried flower sent shows all the details, including the characteristic orange throat, of C. Trianæ, of which it is a remarkable form (even when dried one petal is three inches broad). A second photograph shows the remarkable arrangement of the petals mentioned. In the one reproduced they are shown nearly end on, hence only the recurved apex is shown, and the dorsal sepal is reflexed behind them. It will be interesting to note the behaviour of the plant next year.

CALENDAR OF OPERATIONS FOR APRIL.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperature in all departments may be slightly increased, taking a guide from the prevailing conditions outside. With the lengthening days, and stronger sunlight, it will now be essential to damp down more frequently in the houses, and the amount of water afforded some species may also be increased without fear of injury. Shading will be necessary on all the houses, with the exception of the Mexican house, admitting as much sun in the early morning, and late in the afternoon, as can be done with safety, taking precaution that the sun does not burn or unduly shrivel any of the plants. Every attention will be necessary during the next few weeks to keep the temperatures under control, by judicious ventilation, shading, and a proper manipulation of fire heat. The spraying of plants overhead, where necessary, should only be done on favourable occasions, the best time being about midday, and it should be done lightly, so that no moisture may remain in the young growths during the night.

The re-potting of the plants generally will at present give plenty to do, and whatever is necessary should be proceeded with without delay. Most of the Cattleyas, Lælias, many Oncidiums, Odontoglossums, Dendrobiums, &c., are done at this season, because new roots push freely, and the plants re-establish themselves, if the atmosphere be kept moist and genial, before the weather gets very hot.

The Mexican house will require little or no shading for some time to come, because this house is generally set aside for species that delight in plenty of sunlight, the excepticns being L. albida, L. autumnalis, L. Eyermaniana and L. furfuracea. These require more shade, compared with L. anceps and varieties, L. majalis, and L. Gouldiana.

PHALÆNOPSES.—These handsome Orchids commence to make new roots this month, or early in May, and will therefore soon require attention. Teakwood baskets, or cylinders, undoubtedly form the best receptacles, and unless these are in any way decayed, there will be no necessity to disturb the roots, which will be attached to the bars. Remove as much of the compost and drainage as is permissible, using a pointed stick for this purpose, then thoroughly cleanse the roots and the rest of the drainage, by immersing in tepid rain water, then renew the drainage, and finish off with cleanly picked living sphagnum moss, making this moderately firm at the base of the plants. Having finished the potting, afford the plants tepid rain water copiously, and shade rather heavily plants that have been disturbed. Avoid a stuffy atmosphere at all times, by giving the necessary amount of warmth, and a genial humid air, so that growth may be free, healthy and strong.

Dendrobiums now developing their flower buds, such as D. thyrsiflorum, D. densiflorum, D. fimbriatum, D. Dalhousianum, D. Farmeri, D. crepidatum, and D. crystallinum, may be removed from their resting quarters to more warm and humid conditions. Any re-potting necessary should be delayed until after the plants have flowered.

CYMBIDIUM.—Undoubtedly the best species of the genus is C. eburneum, which has just passed out of flower. It thrives well if given an intermediate temperature, and a liberal amount of moisture at the roots whilst making new growth. This is now commencing, and, should any re-potting be necessary, this should now be done. A suitable compost consists of two-thirds turfy peat, one-third fibrous loam, intermixed with sharp sand, finely broken crocks, or charcoal. Give plenty of drainage for this species, and pot moderately firm, well working the compost down to the roots. Water sparingly at first, keeping the surface and foliage well moistened to prevent loss of foliage, and encourage new growth. C. Mastersii, C. tigrinum, and others in the same condition of growth, may also be repotted, and require less drainage than advised for C. eburneum. C. Lowianum grows best under cooler conditions ; its flower spikes will now be in a forward stage. When these have lengthened, and the buds developed, they should be secured to sticks, to prevent the racemes from being weighed down. They will last in bloom for a very long time if kept in a cool house, though it is advisable to remove the spikes after a reasonable time, in order that the plants may not be too much exhausted. Should any plant not show signs of flowering, any renovation of compost can now be done, but repotting ought to be delayed until such time as new roots appear, later in the year. The remarks as to potting compost will apply likewise to C. Lowianum.

Cœlogyne cristata and its varieties may now be repotted, or otherwise renovated, as their requirements need, using for compost two parts turfy peat to one of sphagnum moss. Sometimes repotting has to be done, when this is the case, remove all the old back pseudobulbs, which will not be required, only potting the younger portions of the plant, taking care to work the compost firmly in the pans, and round the base of the pseudobulbs. Those not in need of repotting should have any new growths pegged down that have a tendency to grow over the rim of the pans, and new material added where necessary. Give abundance of moisture overhead, and at the roots, whilst making new growth. C. Massangeana, C. Dayana C. tomentosa, C. speciosa, and others starting new growth, may also be repotted, using compost as advised, with an addition of finely broken crocks and sharp sand.

Odontoglossum grande will be commencing to form new roots and growths, and may now have attention. I find leaf soil answers splendidly for potting compost, surfacing over with sphagnum moss. Water carefully

after repotting, but keep moist, and in a growing condition, the most suitable place being a position in tbe Intermediate house.

DISAS.—The present is a suitable time to repot Disas. The garden hybrids, with few exceptions, are the most tractable, and can generally be grown with better results than is the case with the species. D grandiflora is the most showy of the species, and any repotting that may be required should now have attention. On no account should they be disturbed where the compost is in good condition, and the plants growing satisfactorily.

Odontoglossum Rossii and O. Cervantesii, as they pass out of bloom, will need to be rested until Midsummer, and little water will be required during this period. Given a position in the cool house, small pans or baskets to grow in, and a careful application of water when growing, will tend to keep these species in a flourishing condition.

Odontoglossum citrosmum will now have its spikes in a forward stage, and any plants not showing flower may be freely watered. It is essential, in order to induce them to flower, that they be given a long dry rest during the winter, as some will not do so unless absolutely shrivelled. When in flower it is certainly a very handsome Orchid, and is always admired.

ORCHIDS IN SEASON.

SEVERAL beautiful flowers are sent from the collection of D. M. Grimsdale, Esq., Kent Lodge, Uxbridge. First may be mentioned a finely-branched inflorescence of Odontoglossum Pescatorei, with well-developed flowers tinged with pink, and only a few small purple spots on the lip, in front of the crest. O. × Coradinei has a bright yellow ground, very prettily spotted with bright red-brown, and O. Rossii is a well-grown example of the typical form. Mr. Grimsdale remarks that he has been using leaf-mould for his Odontoglossums for about a year, and *with very good results*. Other flowers enclosed are a large and well-shaped form of Cattleya Trianæ, with blush-pink sepals and petals, and the front of the lip bright crimson, flowers of Paphiopedilum virens, P. Victoria-Mariæ, a large and richly-coloured P. villosum, and several good forms of Dendrobium nobile.

A very handsome hybrid of Lælia cinnabarina is sent from the collection of J. F. Laycock, Esq., Wiseton, Bawtry, Notts., by Mr. Lamb, the sepals and petals being of a rich orange-yellow, and having an expanse of nearly six inches, and the front half of the lip intense purple crimson. We should refer it to Lælio-cattleya × Cappei grandiflora. A good light form of Cattleya Trianæ is also enclosed, and flowers of Odontoglossum constrictum, O. triumphans, and a finely blotched form of what we take to be

O. × Horsmanii, a natural hybrid between O. Pescatorei and O. luteopurpureum.

There is a considerable amount of variation in Odontoglossum triumphans. Three quite distinct forms are sent from the collection of T. Baxter, Esq., Morecambe, Lancashire, by Mr. Roberts. The first is typical in shape, but the colour is very dark, owing to the yellow markings being reduced to a very few streaks and a small yellow tip. A second is more typical in colour, but the sepals and petals are long and narrow, the base of the petals much spotted, the column and base of the lip long and slender, and the crest small, as if somewhat abnormal. The third is small, but fairly typical, so probably undeveloped.

Several handsome Paphiopedilums are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, which show the value of these plants for winter blooming. They include fine forms of P. × Lathamianum, P. × Leeanum, a very handsome form of P. × Goultenianum called Phœbus (callosum × Curtisii), P. × Calypso, some distinct forms of P. × Hera, also hybrids between P. villosum and P. Charlesworthii, P. barbatum and P. ciliolare, and P. × Swinburnii and P. venustum pardinum. A handsome form of Cattleya Trianæ with brightly coloured lip and a crimson feathered marking at the apex of the petals is also sent.

Some beautiful flowers are sent from the collection of J. E. Vanner, Esq., Camden Wood, Chislehurst, by Mr. Robbins, including a fine Cymbidium × eburneo-Lowianum, a good Paphiopedilum × Mansellii, being the second flower from a seedling plant obtained by crossing P. villosum with the pollen of P. Chamberlainianum, and the handsome Phragmipedilum × cardinale Vanneri, which is a decided improvement on the typical form. Another hybrid of uncertain parentage is very beautiful. It is from a batch of seedlings obtained from a plant purchased carrying a seed-pod said to be Paphiopedilum × Calypso × bellatulum, but which Mr. Robbins thinks cannot be correct. The petals are very broad, and rich shining brown, which colour extends to the lip, and recalls P. Boxallii. The dorsal sepal is light green, bordered with white, and heavily spotted with dark purple-brown, the spots being more or less confluent; and the staminode has a prominent dark green tooth, all of which characters appear to have been derived from P. Boxallii. It is a plant to be taken care of, and the question of parentage may be cleared up hereafter.

The remarkable Catasetum tabulare, Lindl., is not common in cultivation, but a plant in the collection of J. W. Arkle, Esq., West Derby, Liverpool, has just produced a nine-flowered raceme. It was received from the River Cauca, in Columbia. The species takes its name from the very broad fleshy callus, which extends almost throughout the length of the lip, and occupies about half its area. An inflorescence of Odontoglossum Rossii is also sent,

in which the lower flower is blotched along the centre to the apex, and larger in size than the upper, in which the spots are confined to the basal third. The peculiarity is said to extend to the other spikes on the plant, though not to so great a degree.

Two flowers of what we take to be forms of Paphiopedilum × Charlesianum (P. × Leeanum × nitens Sallierii) are sent by Signor A. Pucci, of Florence. One is a rather small form, having the dorsal sepal much spotted with bright red-purple, except on the white margin, while the other is larger, with the spots smaller, much less numerous, and browner in colour. A third flower sent appears to be a form of P × Canhami, a hybrid between P. villosum and superbiens, though its parentage is not exactly known.

A very beautiful series of Dendrobium flowers is sent from the collection of T. Statter, Esq., Stand Hall, Whitefield. First, we may mention the chaste and beautiful Dendrobium nobile virginale, which is said to have received a First-class Certificate at Manchester the other day, under the name of D. nobile album, Cypher's variety. The original D. n. nobilius is sent in superb condition, also D. n. Sanderianum and D. n. Cooksonianum. D. × Ainsworthii is finely developed, and its varieties include Leeanum and giganteum, the latter reaching 4 inches in expanse across the petals, and the lip $1\frac{1}{4}$ inches broad—a really remarkable form. We have not used the generally current names of × splendidissimum Leeanum and giganteum, for splendidissmum is itself a variety of Ainsworthii. D. × Rubens, the secondary hybrid between D. × Ainsworthii and D. nobile, is represented by the chaste form known as Apollo album. Other charming things are D. × chlorostele var. Juno, D. × melanodiscus var. Rainbow, very finely developed, D. × Owenianum, D. × Pitcherianum var. Rolfeæ, and D. × Snowflake, a very charming white form with bright maroon-purple disc., which received a First-class Certificate at Manchester last year. It looks like a variety of D. × euosmum. All these forms are splendidly developed, and afford evidence of excellent culture.

Another charming series of Dendrobiums is sent from the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander—a series which one cannot do justice to in cold print : colour photography, if perfected, as as one of these days it is likely to be, might give some idea of the exquisite shades of colour to be found in such a group. D. nobile is represented by a series of nineteen forms, the named varieties being virginale, elegans, Amesiæ, Cooksonianum, nobilius, and murrhiniacum, and the others representing a considerable range of variation in colour and size, one of them reaching over $4\frac{1}{4}$ inches across the petals. The others are D. Falconeri giganteum, D. × Venus, D. × Cybele, D. × Dominianum

D. × Schneiderianum, D. × Wiganiæ, D. × Pitcherianum Rolfeæ, D. × Harold, D. × Sybil magnificum, D. × chlorostele xanthocentrum, D. × Ainsworthii varieties splendidissimum and intertextum, D. × Rubens vars. magnificum, Virgil, Apollo, and album, and D. × melanodiscus, with its varieties Rainbow, and Clytie. Considerations of space prevent more than a mere list of names, but those who know the plants can picture their effect, when it is added that the plants are superbly cultivated. Other good things included are flowers of Cymbidium Lowianum, C. × eburneo-Lowianum, and a fine spike of Ada aurantiaca.

CULTURE OF ORCHIDS IN LEAF-MOULD.

The discussion as to *leaf soil* has interested me greatly, and I have potted my whole collection in it—the labour of getting and preparing fern root was a burden not to be borne, while this material is no more trouble than potting plants in ordinary soil. The midge, *Sciara inconstans*, which is troublesome in European greenhouses, and specially mushroom caves, works in the material to some extent, and bites the new roots, that is to say the larvæ do.

The leaf soil in Orchid pots coming from England (Sander & Co.) seems like veritable *earth*; what I use is flaky, and full of fern and tree roots, creeping among the half rotten leaves. I think these a very important part of the material, as the attendant mycorhizal fungi in many cases are quite certainly of species able to assist the Orchid roots, just as they do those of the forest trees.

I had magnificent success last autumn in starting hybrid Orchid seed on this leaf soil, ground up in a sausage cutter, but the Sciara larvæ bred in it by myriads, and devoured thousands of hybrid seedlings in a night. I saved about 800 by transplanting them to wire netting trays, with a thin layer of the same material—which contains no midges or larvæ when fresh—but they were again attacked. I tried subjecting the trays to an atmosphere of carbonic acid gas for several hours, but it had no effect on the maggots. Then I fumigated for fifteen minutes with strong carbon bisulphide vapor and killed all the larvæ. In a few hours the largest seedlings (one inch high) turned black, and in three days all were dead—the smallest ones surviving the longest. In a preliminary trial seeds just turning to green globes were not killed.

I am making some experiments with seeds in closed glass jars, oxygen being supplied by the use of hydrogen dioxide, which does not injure germinating Orchid seeds, even when used in quantity, in full commercial strength (three per cent). So far (five weeks) the experiment is more or

less promising, there being more and larger green globes in the jars than in outside plantations made at the same time.

THEODORE L. MEAD.

Oviedo, Florida, U.S.A.

Mr. Burberry writes to say that last growing season he formed a very good opinion of leaf-mould, but after the resting season his faith has been shaken and he has returned to the use of peat and sphagnum.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during April, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on April 3rd and 17th. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

At a Special General Meeting of the Royal Horticultural Society held at the Drill Hall, Westminster, on March 21st, it was decided by a great majority to accept the principle of building a new Hall in celebration of the Society's Centenary, and to adopt the Report then laid before them by the Council. The proposal is to build a new Hall and Offices on a site in Vincent Square, which has been secured by Baron Sir H. Schröder on a lease for 999 years, the estimated cost being from £20,000 to £25,000. It is proposed to open the building in 1904.

We learn that the handsome Odontoglossum crispum Mabel Whateley, to which an Award of Merit was given by the R.H.S. on February 25th last, has been sold for £200. In our report at page 91 the exhibitor's name was, through a printer's error, given as Whitely, instead of Whateley.

ORCHID PORTRAITS.

ANGRÆCUM ICHNEUMONEUM.—*Gard. Chron.*, 1902, xxxi., p. 194, with suppl. fig.

CYMBIDIUM × LOWIO-MASTERSII.—*Gard. Mag.*, 1902, p. 128, with fig.

CYPRIPEDIUM × A. DIMMOCK.—*Gard. Chron.*, 1902, xxxi., p. 157, fig. 48.

CYPRIPEDIUM × EDMUND ROTHWELL.—*Amer. Gard.*, xxiii., p. 138, fig. 33.

CYPRIPEDIUM HOOKERÆ.—*Amer. Gard.*, xxiii., p. 138, fig. 33.

CYPRIPEDIUM × SALLIERI HYEANUM.—*Amer. Gard.*, xxiii., p. 138, fig. 33.

CYPRIPEDIUM SPECTABILE (at Guildford).—*Garden*, 1902, lix., p. 101, with fig.

CYPRIPEDIUM × VENUS OAKWOOD VAR.—*Journ. Hort.*, 1902, xliv., p. 123, with fig.

DENDROBIUM × APOLLO GRANDIFLORUM.—*Journ. Hort.*, 1901, xliv., p. 201, with fig.

DENDROBIUM SPECIOSUM.—*Gard. Mag.*, 1901, p. 135, with fig.

LÆLIA ANCEPS HILLIANA ROSEFIELDENSIS.—*Gard. Mag.*, 1902, p. 158, with fig,

LÆLIO-CATTLEYA × CHOLETIANA.—*Journ. Hort.*, 1902, xliv., p. 249, with fig.

LÆLIO-CATTLEYA × QUEEN ALEXANDRA.—*Journ. Hort.*, 1902, xliv., p. 181, with fig.

MASDEVALLIA ELEPHANTICEPS, Rchb. f.—*Bot. Mag.*, t. 7824.

ODONTOGLOSSUM CRISPUM LADY JANE.—*Gard. Chron.*, 1902, xxxi., p. 181, fig. 56.

ONCIDIUM VARICOSUM MOORTEBEEKENSIS.—*Gard. Mag.*, 1902, p. 177, with fig.

ZYGOCOLAX × WIGANIANUS SUPERBUS.—*Gard. Chron.*, 1902, xxxi., p. 156, fig. 47; *Gard. Mag.*, 1902, p. 142, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

X. Y. Z. The leaf you send confirms our suspicion that you have a bad outbreak of yellow thrip. Examination shows no trace of minute fungi, but plenty of evidence of the work of the destructive pests mentioned. Use tobacco powder, as suggested, and fumigate as necessary. Of course the leaves will remain disfigured so long as they remain on the plants.

R. T. Odontoglossum luteopurpureum and O. crispum roseum, the latter a finely shaped and well-coloured form.

J. R. Cattleya received with thanks, note deferred. The plants are Schomburgkia undulata, Pleurothallis rubens (the name referring to the flowers in a dried state), Batemannia peruviana, and Bulbophyllum sp. not identified.

D. W. L. Chysis is pronounced Kysis, Thunia as Tewnia, and Cattleya as in the English name which it commemorates. A description and photographic illustrations of the Cattleya Fly, natural size and enlarged, were given at page 241 of our eighth volume. We regret that we cannot undertake to give supplemental coloured plates at present.

Photographs received, with thanks. J. E. R. (next month), I. B., C. C. H.

Received. C. M., J. C., F. W., J. H., W. H. R., W. J., E. F. C., H. J. E.

Several notes are unavoidably postponed.

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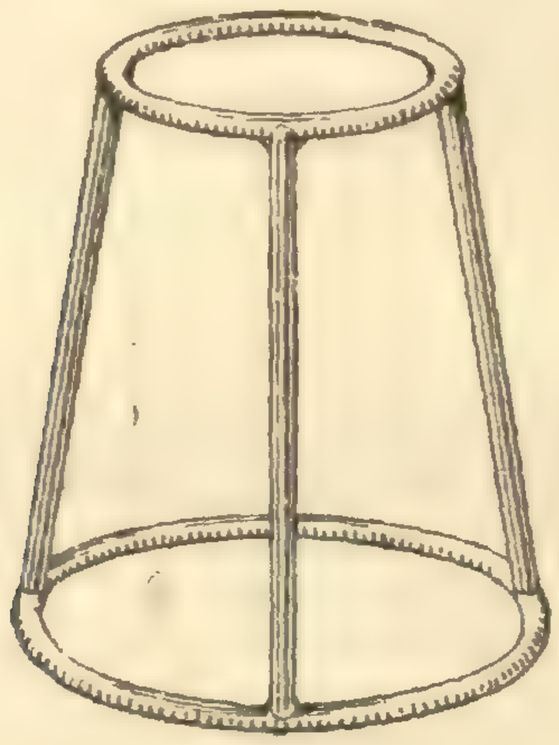

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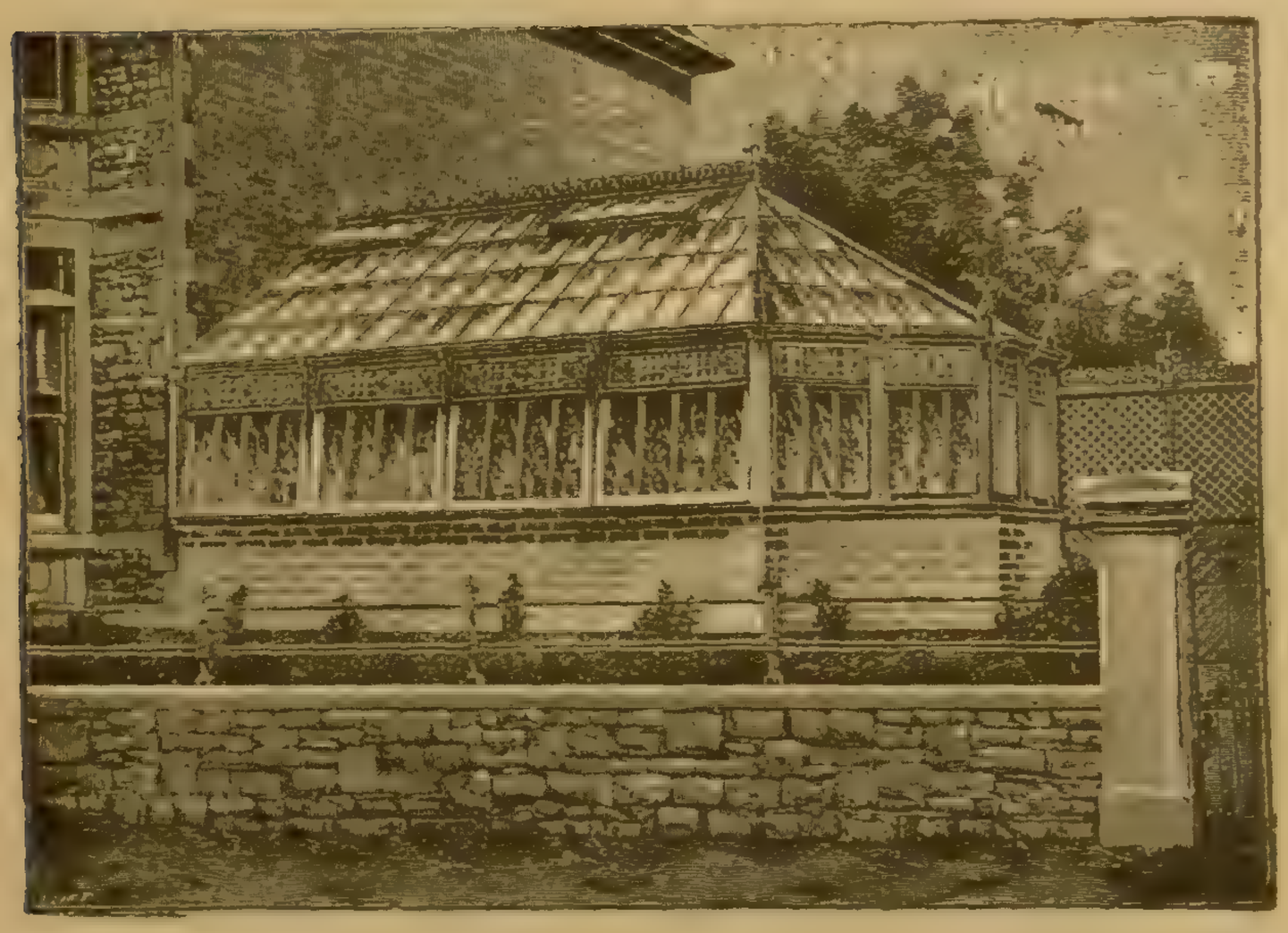

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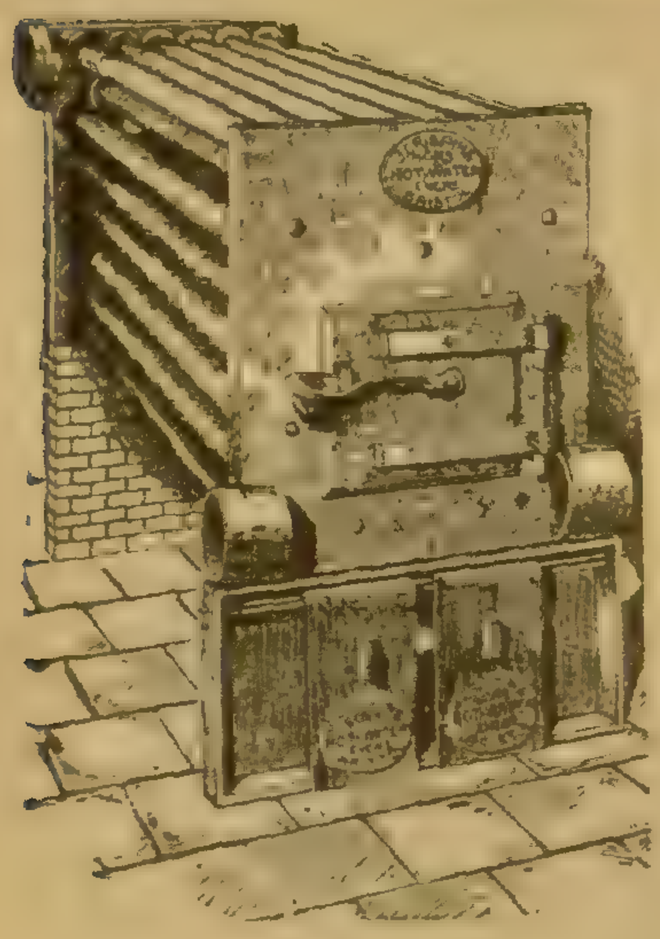

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THE ORCHID REVIEW.

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DIES ORCHIDIANI.

I HAVE not yet alluded to the interesting article on Brassavola hybrids which appeared in the March number, but communications received render such a course desirable. M. Chas. Maron writes objecting to a change of name of certificated hybrids, and proceeds to say:—"I see that the name of Brassocattleya × Maroni has been given to the hybrid which I showed in March, 1899, under the name of Lælio-cattleya × Imperatrice de Russie. It is said that the name of L.-c. × Digbyano-Mendelii was afterwards imposed. I wonder by whom, and for what reason, as the Committee of the R.H.S. had certified it under the name I gave it, and under which I wish to keep it. If Bentham made a mistake in placing Brassavola Digbyana with Lælia we may adopt the generic name of Brassocattleya, and call it B. × Imperatrice de Russie. There are in England plants bearing such names as Empress of India, Princess of Wales, Queen of England, and many others, and I do not see any objection to the name I first gave to the hybrid."

I cannot give the exact history of the change of name, but I remember that in the summary of Orchids certificated by the R.H.S. in 1901 it was remarked (page 18): — "Lælio-cattleya × Digbyano-Mendelii was certificated three times, the forms being called Hessle var., Tring Park var., and Veitch's var." I believe the R.H.S. Orchid Committee have adopted the principle of one specific name for the same hybrid, and thus the certificated names should have been L.-c. × Imperatrice de Russie, Hessle var., &c. Did they overlook their earlier certificate, or is there some other reason for the change of name?

With respect to the objection to changing certificated names, apart from other considerations, we are likely to be confronted with the difficulty of ascertaining what these names really are. At a recent meeting of the R.H.S. I saw a very beautiful plant labelled "Cattleya amethystoglossa

Sanderæ," bearing the official ticket, "First-class Certificate," and it was so recorded in the *Gardeners' Chronicle* and the *Orchid Review*, but both the *Gardeners' Magazine* and *The Garden* give the certificated name as "C. guttata Prinzii var. Sanderæ." I shall be curious to see what the Society's own official record says, but, in any case, the plant is certainly no variety of C. guttata. If it were so the name, as it stands, is incorrect—that is to say the word "variety" is out of place—and would have to be written "C. guttata var. Prinzii subvar. Sanderæ." Fortunately there is no need for such an attenuation.

But I must return to M. Maron's hybrid. There is also a rule—not always followed, unfortunately—that specific names should consist of a single word, an exception being made in a few cases where distinct words can be joined by an hyphen (as, for example, Cattleya × Victoria-Regina). M. Maron's name does not conform to this rule, unless indeed it be written "Imperatrice-de-Russie," which, I should think, no one would seriously propose. To have abbreviated the name to "L.-c. × Imperatrice Hessle var.," &c., might have conformed to rule, but would probably have been met with the same sentimental objection. The name "Digbyano-Mendelii" may, perhaps, be held to conform to rule, but is open to the same objection as that of "Digbyano-Mossiæ," of which the Editor of the *Gardeners' Chronicle* remarked:—"We hope some means may be taken to render the specific name less cumbrous." It seems to me that in transferring these plants to Brassocattleya the use of the specific names Maroni and Veitchii is "felicitous."

Now as to the generic name Brassocattleya, to which M. Maron does not object—though by the way he did not adopt it for his new hybrid between Lælia Digbyana and Cattleya Dowiana aurea (at least, according to the record)—it seems clear that Bentham did make a mistake in referring Brassavola Digbyana to Lælia, so far as the characters of the plant are concerned, but a different view of the matter reaches me from another correspondent to which I must now allude.

It is said that Brassavola Digbyana hybridises with Lælia, and, therefore, *must* be allied to it. The remark is said to apply to Cattleya also, but the worst of it is that it does not help us. If it is intended as an argument that Brassavola Digbyana is a Lælia, and not a Brassavola—the view taken by Bentham—it might also be used to show that the plant is a Cattleya, and incidentally that all Lælias are Cattleyas (*if they will hybridise with them*) and *vice versa*. But Cattleya also hybridises with Brassavola proper, and thus the circle is practically complete. Following the argument, it remains for some one to cross Lælia Digbyana with Brassavola

proper, but if Lælia is Cattleya, and Cattleya is Brassavola, how can Brassavola not be Lælia? This is merely following the argument to its logical conclusion. And we have not done with the matter yet, for Cattleya crosses with Epidendrum and with Sophronitis, and Sophronitis again with Epidendrum and with Lælia, while Lælia crosses with Leptotes. I don't think we have got any further yet, but if these are all one genus, because they cross together, how are we to separate this composite genus from the rest of the tribe Epidendreæ? And what evidence have we that hybridists are going to stop at this point? Truly I do not envy our botanists their work in the future.

A rather curious illustration of the possibilities of the system of nomenclature just mentioned was furnished by Reichenbach, when, in 1886, the first hybrid between Cattleya and Sophronitis flowered. For some occult reason this cross led him to regard the species of Sophronitis as Lælias. "The effect of mixing a Sophronitis and a Cattleya is a Lælia!" he remarked, and he described the hybrid as Lælia × Batemaniana. But the curious thing is that he made an exception in favour of S. violacea, and, excluding all others, regarded it as the only true species of the genus. And now the hybridist has successfully hybridised it with Epidendrum. Oh, the irony of it!

Once upon a time a similar idea prevailed with regard to species. If any two of them could be crossed together it was taken as evidence that they were only forms of one, but the idea had to be given up, and it is becoming increasingly evident that it is no more applicable to genera, and must also be discarded.

ARGUS.

ORCHIDS IN SEASON.

A BEAUTIFUL series of Dendrobium flowers is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, which were cut from a group of plants to which a Silver-gilt Medal was awarded by the Manchester Orchid Society on April 3rd last. They include D. nobile and its varieties nobilius, Sanderianum, Amesiæ, Ballianum, Wrigleyanum—which comes extremely close to murrhiniacum—and Symmetry, the latter having broad segments, the petals being slightly over an inch broad. The variety Ashworthiæ is much like Amesiæ, but rather larger, and is remarkable for having a bright purple streak at the base of one petal, and a broad white streak on one side of the dark maroon disc of the lip—a character which should be watched. The others are the

charming albino D. crassinode album, D. × euosmum leucopterum, D. × Pitcherianum Rolfeæ, D. × P. roseum, D. × Rubens, and its varieties magnificum, Socius (richer than nobile nobilius in colour), and album, D. × micans, D. × Kenneth, D. × Astrea, and D. × melanodiscus Luna. Lastly may be mentioned a charming little plant recorded and certificated a few years ago as D. nobile Sanderæ, which proves to be a form of D. × Pitcherianum.

An interesting and beautiful series is sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno (gr. Mr. Axtell), including the rare and curious little Dendrobium linguiforme, an Australian species with very stout oblong fleshy leaves, and racemes of white flowers with narrow segments; a spike of Arpophyllum giganteum, with its numerous small rose-coloured flowers; the graceful Brassia longissima; Lycaste gigantea, a rather rare Orchid in cultivation, which has been in flower a month before being sent; a fine raceme of Odontoglossum apterum, more generally cultivated under its later name of O. nebulosum; three good forms of O. luteopurpureum; a fine unspotted form of O. crispum; a remarkable flower of Dendrobium nobile in which the dorsal sepal is petal-like in character, nearly 1¼ inches broad, and the whole flower very dark in colour; and, lastly, three pretty forms of Masdevallia coccinea (Harryana).

An inflorescence of Brassia ocanensis is sent from the collection of Frau Ida Brandt, of Zurich. It was received two years ago among plants of Ada aurantiaca, which out of flower it much resembles, except that the leaves are larger, broader, and lighter in colour. A light form of Odonto-glossum × Adrianæ and a form of O. × Andersonianum with rather narrow segments are also sent, and both these were purchased as O. crispum, which affords some idea of how comparatively common natural hybrids are among importations of O. crispum.

Some beautiful Odontoglossums are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, and among them a flower of the handsome O. crispum Robert McVittie, to which a First-class Certificate was given at the R.H.S. meeting on April 22nd. It is a fine form with broad segments, the petals somewhat toothed, and the blotches on both sepals and petals very large, more or less confluent about the centre, and rich red-purple in colour, while the lip also bears one very large blotch and several smaller ones. It is interesting to find that the curious form of O. crispum having the inner halves of the lateral sepals yellow, and bearing crest-like appendages like those of the lip, which was noted at page 199 of our eighth volume, remains constant, for the inflorescence now bears twelve flowers, all being alike in this respect. Other forms sent are the pretty little O. Hunnewellianum, O. luteopurpureum, two forms of O. triumphans, one having a large amount

of deep yellow on the segments, and the other almost entirely suffused with brown, O. × excellens, a good O. × Denisonæ, a closely and densely spotted O. × Andersonianum, and three forms of the charming little O. × Adrianæ. One called O. × A. Barbette has the blotches of the sepals and petals very large and of the deepest chestnut brown, while another having smaller and paler spots is of the most perfect shape and exquisitely undulated all over. Lastly may be mentioned a remarkable form which bears a certain amount of resemblance both to O. gloriosum and O. Hunnewellianum. All the forms bear evidence of good culture.

Six handsome Dendrobiums are sent from the collection of Fred. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, by Mr. Stafford. D. nobile Arnoldianum is a small dark form, with the inner halves of the lateral sepals lip-like in character, having not only the dark maroon blotch, but also the primrose-yellow area in front. It was purchased at the Pickering sale, and had been in the collection many years. It is very distinct from D. n. Cooksonianum. D. aureum Ellerianum is a curious small form obtained from the same collection. A third is an interesting form of D. × Ainsworthii, a seedling obtained by crossing D. nobile Cooksonianum with the pollen of the variety last named. Mr. Stafford states that about thirty seedlings of this cross have already bloomed, but none have shown any of the abnormal Cooksonianum character. The flower sent is white, with the disc light maroon purple. A fourth is either D. × Cybele erubescens, noted at page 170 of our last volume, or a form closely resembling it. It is a very fine form, measuring $3\frac{3}{4}$ inches across the petals, and the peculiar rosy shade on the apex of all the segments is very pleasing. The remaining forms are, what we take to be a small example of D. × Pitcherianum, and a new hybrid between D. nobile and D. × Schneiderianum, which is noted on another page. Mr. Stafford remarks that they have had a grand display of flowers during the last few weeks.

A fine three-flowered spike of Paphiopedilum × Carnusianum is sent by Signor R. Scuola, of Florence. It is a seedling from P. Haynaldianum ♀ and P. Spicerianum ♂, whose characters it combines very effectively. In general character it approaches the former, but the influence of the latter is seen in the ample white dorsal sepal, tinged with purple, and having a deep purple median band. At the base is a bright green area, spotted with brown, while the lower halves of the petals are similar in colour, the spots becoming smaller where they merge into the purple tips. A handsome form of P. × Hera is also sent, having a very broad dark purple median band on the dorsal sepal, and the white area on either side is beautifully veined and mottled with purple. A third handsome flower is said to have been obtained from P. superbiens × Lawrenceanum, but is most like the latter chiefly differing in having more spots on the petals.

A fine inflorescence of Chysis bractescens is sent from the collection of T. Statter, Esq., Stand Hall, Whitefield, by Mr. Johnson, bearing eight of its chaste and beautiful white flowers.

A good Odontoglossum crispum roseum is sent from the collection of Mrs. Hollond, Wonham, Bampton, Devon, together with a pretty light form of O. × Andersonianum.

CYMBIDIUM × BALLIANUM.

At a meeting of the Manchester Orchid Society held on April 27th, 1899, a First-class Certificate was given to the above, which was exhibited by G. Shorland Ball, Esq., Ashford, Wilmslow. It was noted as "a distinct and handsome Cymbidium, with a three-flowered inflorescence, the colour being ivory-white with a deep yellow crest. It is said to have been imported with C. eburneum, and it is suggested that it may be a natural hybrid from it and some other species" (*Orch. Rev.*, vii., p. 154). The doubtful point involved was never cleared up, but now another plant has appeared, in the establishment of Messrs. F. Sander & Co., at St. Albans, and a careful examination shows that it is intermediate between C. eburneum and C. Mastersii, which suggests the probability that somewhere the two species grow more or less intermixed. According to King and Pantling, in their *Orchids of the Sikkim Himalaya*, C. eburneum grows at lower elevations than C. Mastersii, the former being noted as common between elevations of 1,000 and 3,000 feet, and the latter occurring at elevations of from 5,000 to 7,000 feet. They also occur in the Khasia hills, the elevation of the former being noted as 3,000 to 4,000 feet, and of the latter 5,000 to 6,000 feet, but Gustav Mann, who collected both species there, indicates the former as occurring at from 4,000 to 5,000 feet, which would suggest that the areas of the two practically overlap, and it is evident that our knowledge of the subject is not complete at present. The new form is unmistakably intermediate, having a longer scape than C. eburneum, and smaller flowers with narrower segments. The sepals and petals are $2\frac{1}{4}$ to $2\frac{1}{2}$ inches long by 5 to 8 lines broad, and more acute than in C. eburneum, while their colour is ivory-white, slightly tinged with pink towards the base of the sepals. The lip is narrower than in C. eburneum, nearly entire, somewhat undulate, and the crest very deep yellow, with a sulphur yellow band along the centre, and a broad yellow band in front of the crest, which is slightly tinged with dusky purple. The face of the column is pink, becoming deep yellow at the base. C. Mastersii, sometimes known as C. affine, is not common in cultivation, but those who have it should make the cross with C. eburneum, and let us know the result, for Cymbidiums are easily raised, and it would be interesting to have the matter proved. R.A.R.

BABU DOOLY CHAND'S ORCHID SHOW.

On the 18th March Babu Dooly Chand invited His Honour the Lieutenant-Governor of Bengal to inspect his valuable collection of Orchids, Palms, Ferns, and other choice plants, after Sir John Woodburn had paid a visit to the Babu's mill. On the 21st he threw open his suburban garden at Cossipore on the Dum-Dum Road to the public. Babu Dooly Chand may with truth be termed a genuine "sportsman." His love for plants is now proverbial, and his well laid out grounds and plant houses, stocked with choicest specimens of plant life, are well worth the rather long trip to Cossipore. On entering the houses one is struck with the growth of each plant, proving the interest taken by the owner in each individual member of his rich collection. The Orchids are all specimen plants, full of vigour, and consequently exhibiting the finest blooms. Phalænopsis was seen in abundance, the species exhibited being grandiflora, rosea, amabilis, Schilleriana, Sanderiana and Stuartiana. There were some grand spikes of Phaius Wallichii, while Dendrobium nobile, D. Phalænopsis, D. superbum giganteum, D. aggregatum, infundibulum, &c., enlivened the houses by their rich and varied hues. Oncidium ampliatum majus, O. Papilio, O. superbum, and leopardinum added a picturesque quaintness, while bold rich-coloured Amaryllis flamed all over the place. The dainty Lady's Slipper Orchids here and there thrust out their modest but lovely flowers; there were some grand clumps of Cypripedium concolor and hirsutissimum, and beds of choice Ferns were coloured with many a lovely Cattleya, Gloxinia and Impatiens Sultani in full flower. . . . This amateur has perhaps the finest collection of Orchids, Palms, and other rare and beautiful plants of any one in India. Of course, it is not everyone who can indulge his fancy to the same extent; but it is the more creditable to Babu Dooly Chand because he is a native of India, and might easily have been tempted into spending his money in a less worthy direction.—*Indian Gardening.*

ODONTOGLOSSUM × WENDLANIANUM.

Another plant of this charming little natural hybrid has appeared, having flowered with Messrs. Hugh Low & Co., of Bush Hill Park, who exhibited it at the R.H.S. meeting on April 22nd. Messrs. Low state that it came home with O. crispum, and until it flowered was taken for a form of that or of O. gloriosum. The resemblance to the rare O. crinitum is so marked, especially in the spiny crest, as to confirm the idea that it is a hybrid between that species and O. crispum. The shape is about intermediate, the segments slightly undulate, and the ground colour cream-white, slightly tinged with rose, and profusely spotted with light brown. R. A. R.

GREENHOUSE ORCHIDS.

THAT useful little work for Amateur Gardeners, *One and All Gardening*, edited by Edward Owen Greening, does not often concern itself with Orchids, but in the 1902 issue, just received, we find photographic illustrations, by Mr. D. S. Fish, of Odontoglossum Rossii, Cymbidium eburneum, and Dendrobium thyrsiflorum, with short descriptive and cultural notes. The Editor remarks:—"In introducing a few notes for the culture of Orchids and other plants requiring glass houses, I am complying with the request of some readers who desire to try their skill on more difficult garden-work than is usually dealt with in *One and All Gardening*." Under the heading Odontoglossums we read:—"The number of Orchids that may be grown in a cool fernery, or even in a

FIG. 13. ODONTOGLOSSUM ROSSII.

greenhouse, provided a moist and shady spot can be found, always depends on space, and not on available kinds. The latter are found in immense variety; in fact, the different forms of one species alone—O. crispum—are almost uncountable, and are ever increasing. This plant, with long arched spikes of white flowers, variously spotted, is, perhaps, all things considered, the finest Orchid known.

"Although O. Rossii majus has not the same qualities as are met with in a good flower of Odontoglossum crispum, yet it is a very pretty dwarf Orchid, usually flowering during the winter and spring months. The dwarf compact habit renders it very suitable for growing in shallow pans, or Orchid baskets, and as the plants are small, they may be placed thickly together. These baskets should be suspended near to the glass roof, and water should be given sparingly during winter. In the warm, sunny months plenty of water is desirable, and a position cool and shady. The flowers

of this Orchid remain in good condition on the plants for many weeks: they also last a long time in water, so are very useful for cutting."

Cymbidium eburneum, often known as the Tulip Orchid, is noted as an ornamental-leaved plant, and "one of the finest-flowered Orchids, and the fact that it may be grown in a shady greenhouse renders it still more valuable to small growers. When potting this Orchid use fibrous loam or peat, with most of the loose soil knocked out. These, mixed with a few broken crocks in small bits, will make a compost that will last for years without becoming sour. This is important, as the roots of this Orchid are very fleshy, and do not like being meddled with. Potting is best performed in the usual way for ordinary subjects; raising the compost above the surface of the pot, or using sphagnum moss is unnecessary. They should also be kept moist, and the leaves sponged of any dirt that is upon them."

FIG. 14. CYMBIDIUM EBURNEUM.

The third subject is not so well chosen, for Dendrobium thyrsiflorum requires more heat for its successful culture, and we wonder why the popular Cypripedium insigne was not chosen. This is the beginner's Orchid, *par excellence*, and we know of amateurs who only possess this single species, which they grow and flower with the greatest success in an ordinary

greenhouse or vinery. No other species can be grown with such ease and certainty under ordinary conditions, in fact it can be potted like any ordinary greenhouse plant, and is beautiful when in flower and graceful at all other seasons. It has many beautiful varieties, and these, with some of its hybrids, should not be lost sight of in this praiseworthy attempt to popularize Orchid growing.

We are indebted to the Editor for the loan of the two blocks which illustrate this article.

EPIPHYTES.

Notes of a lecture given at a meeting of the Kew Gardeners' Mutual Improvement Society on January 20th, 1902. By R. Allen Rolfe, A.L.S.

(*Continued from page* 104.)

The relation of these plants to their nutrient substratum is a very interesting question, because it enables us to see the particular way in which they obtain their food. Those that grow on the bark of trees—and they are numerous among Orchids—have a peculiar method of maintaining themselves. Their roots are adnate to the bark, exposed on one side to the air, and form projecting lines and ridges, ramifying in all directions, and often constituting a regular trellis-work cemented to the bark. These serve as instruments of attachment, but at the same time they also absorb nutriment from the substratum, the decaying bark upon which the plant is epiphytic. During periods of drought this absorption is suspended, and the plant is practically dormant, but when the rainy season commences there is a long duration of wet weather, the water trickling over the surface from the collecting ground of leaves and twigs overhead, descending lower and lower, and bringing down not only tiny loosened particles of bark and decaying vegetation, but mineral and organic dust which has collected, dissolving all the soluble matter it finds on its way, and so reaches the roots and rhizoids in the form of a solution of mineral and organic compounds, chiefly the latter. In this way the requisite nourishment is conveyed to these curious epiphytes, whose period of active growth occurs during the rainy season.

The roots of epiphytal Orchids differ from those of terrestrial plants in being covered with a white papery substance, called the velamen, and the cells of the velamen serve the double purpose of condensing or absorbing aqueous vapour from the atmosphere, when any is present, and of protecting the underlying cells from excessive evaporation during periods of drought. In its absorptive character it is analagous with the outer cells of the bog-mosses (sphagnum) and Leucobryum, where the small chlorophyll-bearing cells are covered by large colourless cells, having very thin walls, which are variously perforated, and not only absorb water in the liquid

state, like a sponge, but also have the power of condensing it when in the form of vapour. A double function appertains to the roots of epiphytal Orchids, firstly to fix the plant to the bark, and secondly to supply it with nutriment. When the tip of a root comes in contact with a solid body it adheres closely to it, flattens itself out more or less, develops papilliform or tubular cells, which grow into organic union with the substratum, and act as holdfasts. But if the root extends beyond the limit of the substratum it ceases to develop these clamp-cells, and hangs down in the form of a white filament, and many of these aërial roots do not become attached at all but hang freely in the air, often forming regular tassels.

The power of condensing aqueous vapour, and other gases as well, is of the greatest importance to these plants, for the bark to which some of them are attached is anything but a permanent source of moisture, and when this supply fails the only possible method of acquiring it is by condensing any that may be present in the atmosphere. When this supply fails the velamen dries up, and then acts as a medium of protection from excessive evaporation from the underlying tissue, and the plant then goes to rest. It must not be supposed that epiphytal Orchids grow in a perpetually moist atmosphere in the shady primeval forests. Many of them grow in only partially shaded spots, and in regions where periods of drought occur regularly every year, during which time there is a more or less complete cessation of vegetative activity, when the use of a protective covering for the roots is at once apparent. Most Orchids which are furnished with aerial roots perish if planted in soil in the ordinary way, but a few of them will occasionally bury their roots spontaneously in the earth, in which case they cease to develop the papery envelope, when they exercise the same functions as in the case of land plants.

Some other plants besides Orchids exhibit this papery covering on their aërial roots, but more frequently these roots are furnished with a dense fringe of so-called root hairs, arranged in a broad zone behind the growing point, which are packed so closely together as to have a velvety appearance. These aerial roots never reach the ground or adhere to any substratum, and their function is entirely to condense and absorb the aqueous vapour from the air in which they are freely suspended, as has been proved by direct experiment. Plants which have this kind of root grow in places where the air is very moist all the year round, and where the temperature does not fall below the freezing point. Where the air becomes periodically dry they cannot exist, because they have no means of preventing excessive dessication, a contingency we have just seen to be provided for in the papery covering of the roots of epiphytal Orchids.

We may now say something about the structure of epiphytes, and the various contrivances made for preserving life during periods of drought. In

many parts of the tropics, although the rainfall is heavy, there is generally an intermission of several weeks, and it is obvious that the epiphytes would wither and die if some provision were not made against such a contingency. The Bromeliads have reduced the evaporation from their leaves to a minimum, and made them hard and tough. Epiphytal ferns store up moisture in thick, leathery, and scaly rhizomes. And among Orchids we find the modified stem known as the pseudobulb, a unique contrivance for retaining leaves through the longest drought. In some cases when the leaves are thin, they fall away altogether, and the plant is reduced to a bundle of green pseudobulbs, attached to its support by a few almost dry aërial roots, and thus it remains dormant until the return of the rainy season. The deciduous Dendrobiums form very good examples of this type. Sometimes the pseudobulbs are large and very fleshy, and the leaves are not deciduous, as in the case of Oncidiums, Odontoglossums, &c., while some seem to rely almost entirely upon their thick leathery leaves as a means of storage, as in the case of Oncidiums of the Lanceanum and Jonesianum groups. Some there are which have both thickened pseudobulbs and thick leathery leaves, as certain Cattleyas, &c. Conversely we find others which have no pseudobulbs, though the leaves are more or less fleshy, as in Masdevallia, and others in which both features are practically absent, as in the Pescatoreas, Bolleas, and Warscewiczellas, a pretty sure indication that these plants have no long periods of drought to provide against. In short, they remain active almost throughout the year, and should be treated accordingly.

We cannot go into details of all the peculiar modifications of structure and habit found among epiphytes, but it may be interesting to glance for a moment at some particular example, and we may select the genus Coryanthes. There are several species, and they are for the most part found attached to bush-ropes, as the stems of woody climbers are often called. We may imagine that a seed lodges in a chink of the bark, and there germinates, producing an oval mass of fibrous roots, in which a colony of ants establish themselves, and in return for free lodgings they serve as a bodyguard to protect the plant from the attacks of cockroaches and other pests. Sometimes this mass of Orchid roots is occupied by a host of rivals, and Mr. Rodway figures one example containing two distinct species of Coryanthes, a Bromeliad, several Anthuriums, and a young shrub, all of which are growing on a ball hardly a foot in diameter. And it may be mentioned that in the Nepenthes house at Kew a clump of Coryanthes contains an example of the Cactaceous genus Rhipsalis, which was imported with it. These plants grow together in perfect harmony, though apart from such evidence it is doubtful whether anyone would think of growing them under identical conditions. Some other Orchids have this peculiarity of

providing a home for ants, as the allied Gongora, and Oncidium altissimum, and it is easy to see how the Orchids benefit by the arrangement. In the case of Diacrium bicornutum and the Schomburgkias the Orchid provides hollow pseudobulbs for the ants to live in, and then the benefit to the insect becomes equally obvious.

In a chapter entitled "Up in the Trees," Mr. Rodway has given a most graphic account of the epiphytes of Guiana. He states that the gloom of the forest is so great that very few plants exist on the ground, and in order to see the representatives of the pretty wood flora of temperate climes we must look overhead. In the recesses of the forest there is nought but bare trunks and leafless bush ropes. Even the epiphytes want light, and cannot exist without it, and where this precious influence is obtainable, they crowd every branch and twig, almost to the ground, and carry on the struggle for life right up to the tree tops. Monster arums twelve feet in diameter occupy the great forks, and throw down long cord-like aërial roots. Pushing those cords aside, the plants are barely discernible on account of the crowd of other epiphytes which surround them. Screens of creepers with festoons of handsome flowers, masses of Rhipsalis, pendulous branches of grass-like ferns, and a thousand epiphytes on every branch, obscure the view, and make it hard to say from whence a particular aërial root is derived. Some branches are occupied by dense rows of Tillandsias, which push everything else aside and take possession of the upper surface, where their vase-like circles of leaves form reservoirs of water against the time when little or no rain falls, which reservoirs are utilized by the beautiful Utricularia Humboldtii. Hardly a twig is free from epiphytes unless the gloom is too great, and these plants vary greatly in the amount of light they require. Some grow on the shady side of the trunks, and never see the sun, others exist and thrive in places where we might expect them to be burnt up. Among the mosses and hepaticæ grow tiny Orchids with almost microscopic flowers.

Some plants can only grow upright on the branches, while others with creeping rhizomes can grow almost anywhere. And there are others which only seem to grow on the edge of the branches, and among them some of the most beautiful Orchids. Doubtless at one time they grew upright, but from the continual pressure of circumstances they have become perfectly fitted to their environment. As examples of this are mentioned Brassia Lawrenceana, Stanhopea eburnea, Gongora atropurpurea, and the remarkable Scuticaria, a plant which seems to have reached the highest point of development on this particular line.

The study of epiphytes in their native surroundings is a fascinating subject, and the fact that they can exist in the way that many of them do shows a marvellous power of development in some past age. They are for

the most part children of the moist forests, and their very existence indicates the victory they have won in their struggle for light. They have literally been forced up into the trees, and have attained their present development by seizing positions of vantage with very little expenditure of materials. Commencing as humble occupants of the shady soil in the forest, it has been remarked that they have, during the course of ages, literally clambered up into the trees, striving after the light, and ever struggling against the precarious and fluctuating supplies of moisture and humus, inventing new absorbing and fixing organs, and contriving fresh devices for resisting threatened death from thirst or starvation, until at length their perilous career was crowned with success, and they formed aërial meadows and shrubberies. Their evolution is still reflected in the forest, where the simplest still lurk low down in moist shaded crevices on the tree trunks, and the more specialised ones are ranged successively upwards, until even before the tree tops are reached perfection is practically attained.

As to the practical lessons to be learnt from their study little more need be said, for they are self-evident. Plants that have so far departed from what may be termed normal habits must be treated somewhat in accordance with that second nature which they have acquired by long use, always remembering, however, that their requirements with regard to light and shade, moisture and temperature, and food supply can often be supplied without resorting to the precise methods which nature has adopted for them. It is the essentials that must be borne in mind and provided for. And their seasons of growth and repose must also be borne in mind if success is to be attained. Use becomes second nature, and we do not alter a plant's requirements one iota by bringing it in from the forest and cultivating in our gardens. If nature has succeeded, we may also hope to do so if we follow her teachings, not slavishly copying every little detail, but striving to understand what is essential, and then applying that knowledge intelligently.

AN IMPORTANT DISCOVERY IN COLOR PHOTOGRAPHY.—At the meeting of the Connecticut Academy of Sciences, Wednesday, February 12th, Prof. A. E. Verrill exhibited several remarkable photographs in natural colors, made direct from nature by a new auto-chromatic process, just invented by Mr. A. Hyatt Verrill, of New Haven, after years of experimenting. One of these photographs was of a bright-colored Bermuda crab, from life; another was a Bermuda landscape in which the beautiful tints of the water, etc., are well brought out, as well as the soft creamy tints of the old stone residence at Walsingham, and the neutral grey of the rocks. Three other plates were copied from water-color drawings of groups of

bright-colored Bermuda fishes, made from life by Mr. Verrill. The photographic reproductions of these drawings showed accurately all the tints and delicate shades of green, blue, pink, purple, yellow, and orange, beautifully blended. The colors in these pictures are peculiarly soft and natural, without the stiffness of the three-color process. The bright-red colors appear to be the most difficult to render by this process at present, but no doubt this will soon be remedied by further experiments now in progress. The photographs are on paper, and are made by a purely photo-chemical process. The process is certain to be of great value for photographing the colors of Natural History specimens and for reproducing paintings, but is not adapted for portrait work owing to the length of exposure required for the negatives.—A. E. V. in *American Journal of Science*, xiii. (April, 1902), p. 329.

AËRANTHES RAMOSA.

UNDER the name of Aëranthus ramosus, Cogn., M. Cogniaux has just figured (*Dict. Icon. des Orch.*) a plant of which he received flowers from M. Peeters, of Brussels, in September last, and to which he states that he gave the name of A. Vespertilio. He also remarks that a month later a plant which had been sent by Mr. Peeters to Mr. F. W. Moore was named Aëranthes ramosa by Mr. Rolfe, who maintained the name in spite of his request to change it; that it was published in the *Orchid Review* for November as a name only; and that in order to avoid synonymy he adopts the name, but changes its form, because although Lindley published Aëranthes in 1821, he recognized that this was incorrect, and in 1824 changed it to Aëranthus. In his account of the genus he fixes the date of first publication as 1825, and cites *Botanical Register*, sub tab. 517. This is an unfortunate string of errors. The original date of publication is neither 1821 nor 1825, but 1824, and the plate is not 517, but 817 (to which latter the so-called correction is wrongly assigned). And this "correction," which appeared in 1830 (*Gen. & Sp. Orch.*, p. 243), is merely a printer's error, the name being always correctly written by Lindley himself. Nor is the form erroneous, any more than Coryanthes, Spiranthes, Lepanthes, and various other genera of flowering plants. Then Aëranthes ramosa did not appear as a name only, but is accompanied by a short diagnosis which shows how it differs from other species of the genus. Lastly, it is also stated that the species was discovered by M. Warpur, and thus dates back to a much earlier period than that mentioned by M. Cogniaux. The net result is that M. Cogniaux burdens our nomenclature with two unnecessary synonyms!

CYPRIPEDIUM × EDMUND ROTHWELL.

THE other day a new hybrid, raised in the collection of J. E. Rothwell, Esq., of Brookline, Mass., U.S.A., was figured and described in *American Gardening* under the above name, as mentioned at page 127, and now we have received the following note from the raiser, accompanied by a photo-

FIG. 15. CYPRIPEDIUM HOOKERÆ.
FIG. 16. C. × EDMUND ROTHWELL. FIG. 17. C. × SALLIERI HYEANUM.

graph, which is here reproduced. Mr. Rothwell writes:—Herewith I enclose photograph of a group of Cypripediums in my collection. The one on the left is a new hybrid of my raising, the middle one being of C. Hookeræ, its pollen parent, and the one on the right C. × Sallieri Hyeanum, its seed

parent. The hybrid, C. × Edmund Rothwell, flowered for the first time on January 3rd, 1902, and was derived by crossing C. × Sallieri Hyeanum with the pollen of C. Hookeræ, on January 5th, 1896, requiring just six years to flower. The seed was sown on January 27th, 1897. The description of the flower is as follows:—Dorsal sepal primrose yellow, darkest towards the base, with a white margin. Petals rich butter yellow, with a strong suffusion of the purple of the pollen parent over the lower half, most intense at the ends. Inferior sepal, greenish, with much the shape of C. Hookeræ. The staminode strongly resembles the seed parent, C. × Sallieri, and is a strong yellow in color. The pouch also resembles the seed parent in shape, and is a dark yellow suffused with a tawny color. The spots of C. × Sallieri have entirely disappeared from the dorsal sepal, and the general appearance of the flower is a decided improvement over either of the parents, and yet is quite intermediate.

The plant which bloomed is very small, and I look for a decidedly larger flower from the next growth. The foliage is almost exactly intermediate in coloring and appearance, being beautifully tessellated like C. Hookeræ, although a much lighter color, but with the upright habit of C. × Sallieri.

J. E. Rothwell.

SOCIETIES.

ROYAL HORTICULTURAL.

A meeting was held at the Drill Hall, Buckingham Gate, Westminster, on April 8th, when the display of Orchids was very fine, though the awards were much fewer than on the last occasion.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), exhibited a fine group, consisting chiefly of cut flower spikes, for which a Silver Banksian Medal was awarded. It contained Odontoglossum coronarium, O Pescatorei Schrœderianum, O. × elegans, O. × Loeanum O. crispum Rex, Angræcum Ellisii, Lælia × Edissa, and others. A First-class Certificate was given to Odontoglossum × Adrianæ Memoria Victoriæ Reginæ, a fine form with white ground, closely and regularly blotched with dark purple.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Flora Medal for a fine group, containing Cypripedium Mastersianum, a pretty hybrid from C. niveum called C. × Sir George Llewellyn, having white flowers marked with purple, Angræcum sesquipedale, Dendrobium atroviolaceum, Odontoglossum crispum Abner Hassell, O. Pescatorei, O. triumphans, O. × Adrianæ, O. × Humeanum, O. × Andersonianum, Chondrorhyncha Chestertoni, and a good many

varieties of Cattleya Schrœderæ. An Award of Merit was given to a handsome hybrid called Zygopetalum × Perrenoudi Cecil Rhodes.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), was awarded a Silver Banksian Medal for three splendidly grown plants of Dendrobium Devonianum, with long pseudobulbs, thickly clothed with its handsome flowers, and forming fine examples of good culture, as the flowering pseudobulbs were home grown.

T. Carruthers, Esq., Gaskmore, Reigate (gr. Mr. Collip), showed a pretty form of Odontoglossum × Wilckeanum.

W. Cobb, Esq., Dulcote, Tunbridge Wells (gr. Mr. Howes), exhibited Sophrolælia × Marriottiana, Cypripedium × Mary Beatrice, and the large and thickly blotched Odontoglossum triumphans Cobbiæ.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. H. J. Chapman), showed Cypripedium × William Lloyd superbum, a large and handsome form bearing a two-flowered inflorescence.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed the handsome Odontoglossum × Adrianæ Crawshayanum, and O. × Bræckmanii Crawshayanum (Hallii × Harryanum).

Captain Holford, C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), exhibited Odontoglossum × elegans Westonbirt variety, a light coloured form having a strong five-flowered spike, and also a good Cattleya Schrœderæ.

J. Richardson, Esq., Hale Croft, near Altrincham (gr. Mr. Jenkins), showed a fine spike of Dendrobium Dalhousianum and three Odontoglossums.

H. F. Simonds, Esq., Woodthorpe, Beckenham (gr. Mr. Day), showed a well-flowered example of Cyrtopodium punctatum and a good Odontoglossum Pescatorei Leeanum.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Cypripedium × W. C. Dickson, a very fine hybrid from C. Rothschildianum, of which the other parent is unrecorded. The habit was dwarf, and the flower, which approached C. Rothschildianum in shape, was tinged with rose and heavily marked with dark chocolate. He also sent C. × Chapmanii Westfield variety, a light form.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), showed a very fine spike of Miltonia × Bleuana, and the handsome M. vexillaria Memoria G. D. Owen.

Messrs. J. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for a magnificent group of hybrids, containing Lælio-cattleya × Vacuna, L.-c. × callistoglossa, L.-c. × Lucilia, L.-c. × Duvaliana, L.-c. × Wellsiana, L.-c. × Dominiana langleyensis, L.-c. × Hippolyta, L.-c. × Myra Princess of Wales, L.-c. × highburiensis, Lælia × Mrs. Gratrix, L. × Latona, L. ×

Novelty, Cattleya × intertexta, Chysis × Chelsoni, C. × Seden Dendrobium × Alcippe, Epidendrum × Clarissa, and Selenipedium × Hylas (leucorrhodum × caudatum Wallisii). An Award of Merit was given to Lælia × Flavina (pumila × flava), a pretty dwarf hybrid, most like L. pumila in habit, but the spike elongated, and the flowers of good size, and primrose-yellow, with an orange-coloured disc to the lip. Masdevallia × Circe (tovarensis × Chimæra) also received a similar award. The flower is larger than in M. tovarensis, but with the more equal segments of M. Chimæra, and the colour yellowish, with red papillæ, and three red lines in each segment, the slender tails being also of the latter colour.

Messrs. F. Sander & Co., St. Albans, received a Silver Banksian Medal for an effective group, containing good hybrid Phaius, Saccolabium calceolare, Cattleya Schrœderæ, Odontoglossum ramossissimum, O. crispum, &c., also four fine plants of O. × crispo-Harryanum.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a small but choice group, to which a Bronze Banksian Medal was given. It contained the charming albino Lælia Jongheana alba, Cattleya Schrœderæ Fascinator, a richly-coloured C. Trianæ, Cypripedium × Colossus (villosum × Sallieri aureum), Odontoglossum crispum Dora, white blotched with chocolate, O. × Hallio-crispum, O. × Adrianæ Daphne, a large and prettily spotted form, and others. An Award of Merit was given to Lælio-cattleya × Dora (L.-c. × Hippolyta var. Phœbe × C. Schrœderæ), a large and handsome hybrid, having salmon-yellow sepals and petals, and a darker tip.

Messrs. Hugh Low & Co., Bush Hill Park, showed good examples of Cattleya Schrœderæ, C. S. Phyllis, a light rose-coloured form, and a beautiful example of C. S. alba, C. Trianæ striata, Saccolabium ampullaceum, Cypripedium × macropterum, C. × Morganiæ, &c.

Messrs. B. S. Williams & Son, Upper Holloway, staged, in a group among other plants, some good Odontoglossums, Cattleya Mendelii, C. Mossiæ, Ada aurantiaca, Cymbidium Devonianum, Cypripediums, Trichopilia lepida, &c.

At a meeting of the Scientific Committee, held on the same date, Mr. James Douglas brought a flower of a hybrid Cypripedium, in which the lip, instead of forming a pouch, was divided into three portions, a basal portion, concave and trough-like, green, marked with small purplish dots; an anterior portion, raised and hump-like, striped with dark brownish purple on an olive-coloured ground, and on either side of this was a wide, oblong, projecting wing. The column was normal.

At the meeting held on April 22nd, the display of Orchids was exceptionally fine, and the space available was hardly adequate for staging them properly.

W. A. Bilney, Esq., Fir Grange, Weybridge (gr. Mr. Whitlock), was

awarded a Silver Flora Medal for a very group of well-grown Dendrobiums, including D. Wardianum, D. nobile Amesiæ, D. n. nobilius, and many other good forms of nobile, many examples of D. × Ainsworthii, Cattleya Lawrenceana, and Sophronitis grandiflora. An Award of Merit was given to Dendrobium × Ainsworthii Hazelbourne variety, a well-flowered pure white variety with a purple disc to the lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for an excellent group, containing a very fine selection of Odontoglossum crispum and its hybrids, including O. c. Stamfordianum, O. c. Annie, O. × Wilckeanum Rosslyn variety, together with O. Hunnewellianum, Cirrhopetalum appendiculatum, *Zygopetalum* Wallisii, Cattleya Schrœderæ, Cypripedium Mastersianum, C. × Sir George Llewellyn, and others. An Award of Merit was given to Odontoglossum × Adrianæ Fairrieanum, a large and handsome form, having the ground colour white, and the purplish brown markings arranged more or less in irregular bars across the segments.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), received a First-class Certificate for Odontoglossum crispum Robert McVittie, a very fine variety, having well-shaped flowers, heavily blotched with dark reddish purple.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), exhibited Cypripedium × Vipani Hessle variety (niveum × philippinense), a large and well-shaped form, which received an Award of Merit. The flower was pure white, dotted with purple lines, and having a white lip.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), exhibited the pretty spotted Odontoglossum crispum Doris, O. × Adrianæ, and O. × Rolfeæ Oakwood variety (O. Pescatorei × Harryanum); the latter, which received an Award of Merit, was a large and handsome form, heavily blotched with dark purple.

E. Ashworth, Esq., Harefield Hall, Wilmslow (gr. Mr. Holbrook), showed a fine spike of Cypripedium caudatum Ashworthianum, and C. c. Wallisii.

J. Colman, Esq., Gatton Park (gr. Mr. Bound), staged an excellent group, containing Odontoglossum Hallii, O. luteopurpureum, O. × Andersonianum, Oncidium monachicum, Vanda tricolor planilabris, and others.

W. J. Cowper, Esq., Valebridge, Hayward's Heath (gr. Mr. Reynolds), showed a well-grown group of Dendrobium atroviolaceum, flowering very freely.

Sir R. G. Harvey, Langley Park, Slough (gr. Mr. Gillies), showed a fine well-flowered example of Cattleya Lawrenceana.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), showed

some fine Odontoglossum spikes, among them being O. × Adrianæ Memoria Victoriæ Reginæ.

The Hon. Walter Rothschild, Tring Park, Tring (gr. Mr. Hill), showed a fine plant of the beautiful Eulophiella Elisabethæ.

Messrs. J. Veitch & Sons, Chelsea, received a Silver Flora Medal for a fine group, consisting chiefly of hybrids, containing Cattleya intermedia alba, C. Mendelii varieties, C. Schrœderæ, Lælio-cattleya × highburiensis varieties, L.-c. × Zephyra, L.-c. × Iberia, L.-c. × Ascania, Lælia × Latona varieties, L. × Digbyano-purpurata, Chysis × Sedeni, Dendrobium × cheltenhamense, and the curious Leptolælia × Veitchii (Leptotes bicolor × Lælia cinnabarina, a very interesting little generic cross, most resembling the Leptotes parent in habit, but the inflorescence more elongated, and the flowers of a rosy-salmon tint. An Award of Merit was given to Cattleya × Niobe (Aclandiæ × Mendelii), a pretty dwarf hybrid, having the sepals and petals tinged with rose, and sparsely spotted with purple, and the front lobe of the lip bright rose-purple.

Messrs. F. Sander & Sons, St. Albans, were awarded a Silver Flora Medal for a very fine group, containing many fine specimens of Dendrobium thyrsiflorum, some fine varieties of Cattleya Skinneri, Odontoglossum × loochristiense, O. crispum varieties, a fine form of O. triumphans, and other Odontoglossums, Cypripedium Chapmanii superbum, Eulophiella Elisabethæ with two spikes, and Miltonia vexillaria Empress Augusta, with large handsome reddish purple flowers. An Award of Merit was given to Cypripedium × Emperor of India, of unrecorded parentage, though the influence of C. Lawrenceanum was apparent. The dorsal sepal was very large, suffused with rose and lined with dark purple, and the petals tinged with rose and spotted with chocolate-purple on the basal halves.

Mr. J. Cypher, Cheltenham, received a Silver Flora Medal for an excellent group, including Cattleya Lawrenceana, Lælio-cattleya × Hyeana, Dendrobium nobile virginale, D. × Cybele giganteum, Cypripedium × Vipani, C. × grande atratum, C. × Harrisianum superbum, Vanda teres, V. × Charlesworthii, Ada aurantiaca, Epiphronitis × Veitchii, and some Odontoglossum crispum hybrids.

Messrs. H. Low & Co. were awarded a Silver Banksian Medal for a fine group, containing Odontoglossum Pescatorei, some fine O. × Adrianæ, O. × A. aureum, O. Hallii, and other Odontoglossums, Dendrobium × Nestor, Oncidium Marshallianum, Lælia × Latona, Cypripedium Curtisii, Cattleyas, and others.

M. Chas. Maron, Brunoy, France, sent Lælio-cattleya × Digbyano-Mendelii, L.-c. × Mrs. J. Lemann (L. Digbyana × C. Dowiana aurea), a very pretty hybrid with primrose-coloured flowers, tinged with rose on the back of the sepals and margins of the petals, and the lip greenish yellow,

tinged with lilac, and with some purple markings in the centre; also a good form of Cattleya × Adonis.

Messrs. Linden & Co., Brussels, exhibited a fine group, containing many Dendrobium nobile varieties, and Odontoglossums, including the handsome natural hybrid Odontoglossum × Galbum, supposed to be from O. odoratum and O. Hunnewellianum, also fine forms of O. triumphans, O. crispum, and O. × loochristiense.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING was held at the Coal Exchange, Manchester, on April 3rd, when there was a fine display of Orchids, including nine groups.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), staged a splendid group of Dendrobiums, to which a Silver-gilt Medal was given. First-class Certificates were awarded to D. × Kenneth var. magnificum and D. nobile hololeucum, and an Award of Merit went to D. × Socius. An account of other forms included in the group will be found on another page.

R. Ashworth, Esq., Newchurch (gr. Mr. Pidsley), sent a beautiful group of Dendrobiums and Odontoglossums, which gained a Silver Medal. A First-class Certificate was given to Dendrobium × Cybele var. magnificum, a Cultural Certificate to D. × C. pulcherrimum, and Awards of Merit to D. nobile ashlandense, O. crispum Empress of India and O. c. Ashworthiæ var. ashlandense. The beautiful Cypripedium × Maudiæ was also sent.

R. Tunstill, Esq., Burnley (gr. Mr. Balmforth), also gained a Silver Medal for a fine group, including Miltonia × Bleuana, Cypripedium × Cowleyanum superbum, Odontoglossum triumphans latisepalum, some good O. crispum, &c. A First-class Certificate was given to O. c. Alpha, a very prettily spotted form.

R. le Doux, Esq., West Derby, Liverpool (gr. Mr. Davenport), sent Odontoglossum × Ruckerianum marlfieldense and O. × loochristiense var. Mrs. le Doux, the latter a handsome bright yellow form, with few large blotches, which received an Award of Merit.

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), showed a plant of the handsome Dendrobium × Aurora.

Mrs. S. Gratrix, Whalley Range, received a First-class Certificate for Cattleya Trianæ Empress of India, a beautiful white form, with a tinge of light purple on the front of the lip.

G. H. Peace, Esq., Eccles, received Awards of Merit for Dendrobium × Cybele pulcherrimum and D. × Holmesianum.

H. Shaw, Esq., Thirby, Cheshire (gr. Mr. Cliffe), sent a plant of Lælio-cattleya × highburiensis.

T. Statter, Esq., Stand Hall, Whitefield (gr. Mr. Johnson) showed

Cypripedium × Francesii, a hybrid between C. Curtisii and C. callosum.

A. Warburton, Esq., Haslingden, received an Award of Merit for Odontoglossum crispum Backhousei. He also sent a beautiful example of O. × Wilckeanum Golden Queen, bearing a spike of twelve flowers—a plant which had previously received a First-class Certificate—and cut flowers of Dendrobium × Clio Vine House var.

Mr. S. Allen, Sale, staged a good group, to which a Bronze Medal was given. An Award of Merit was also given to a good form of Dendrobium nobile.

Mr. J. Cypher, Cheltenham, staged a small group of fine things, chiefly Dendrobiums, to which a Bronze Medal was given.

Mr. A. J. Keeling, Bingley, Yorks., also received a Bronze Medal for a good group in which Dendrobium × Luna, and D. × Juno were conspicuous.

Mr. W. Holmes, Timperley, received Awards of Merit for Dendrobium × Staffordi delicata and D. × S. Distinction.

Messrs. F. Sander & Co., St. Albans, received an Award of Merit for Odontoglossum crispum Imperator, a large white form of good shape and with broad segments.

At the meeting held on April 17th there was again a very fine display of Orchids, and the list of awards which has reached us shows that seven First-class Certificates and fifteen Awards of Merit were given, but we regret that owing to pressure on our space the details must be held over until next month.

ONCIDIUM VARICOSUM VAR. INSIGNE.

In the last number of the *Lindenia* (t. 767), M. L. Linden figures and describes a plant, which appeared at Moortebeek, in 1899, under the name of Oncidium varicosum var. moortebeekiense, which differs from the type in having a large red-brown blotch at the base of the lip. This handsome form was described in these pages in 1898 (vi., p. 27) under the name of O. varicosum var. insigne, as a very striking form which had appeared in several collections, differing from the type in having a very large deep red-brown blotch surrounding the crest. It appeared at Glasnevin as early as 1889, and when other plants appeared having the same characters, it was described as above, with the remark that it was evidently not a mere casual variation. It has now appeared again, and it is unfortunate that it has received an additional name.

R. A. R.

LÆLIO-CATTLEYA × LUMINOSA.

THE annexed illustration represents a very beautiful hybrid from Lælia tenebrosa ♀ and Cattleya Dowiana ♂, in the collection of Sir James Hamilton, Manderston, Duns, N.B. The photograph reproduced has been kindly sent by Mr. Hamilton, who remarks that the colour of the petals is decidedly that of C. Dowiana, and the lip more like L. tenebrosa. The plant is small at present, but will evidently develop into a very handsome thing when it becomes strong. The hybrid is called Lælio-cattleya × luminosa, but whether this is its correct name is a question of some

FIG. 18. LÆLIO-CATTLEYA × LUMINOSA.

difficulty. A hybrid of this parentage was exhibited at Paris on October 10th and 24th of last year by M. Ch. Maron, under the name of L.-c. × Truffautiana, and was described at page 338 of our last volume. Shortly afterwards we were told that the same hybrid was exhibited at the Chrysanthemum Show of the Manchester Royal Botanical and Horticultural Society in the autumn of 1900, under the name of L.-c. × luminosa, and received a First-class Certificate. We looked up the report of this meeting in two horticultural papers without finding a mention of the plant, and then

wrote to the Secretary, who could not find any record about it. As the facts stand at present L.-c. × Truffautiana seems to have been the first published name, and M. Ch. Maron has written to *Le Jardin* (1902, p. 103) protesting against the substitution of L.-c. × luminosa for L.-c. × Truffautiana. We should like to know whether there is any record of L.-c. × luminosa being exhibited in 1900, in which case it would be the earlier name. In any case it has since been recorded, and in view of the uncertainty mentioned we retain it. We hope to see the doubtful point cleared up.

A DENDROBIUM BRYMERIANUM HYBRID.

In a very interesting article entitled "Dendrobium Brymerianum as a Parent," which appeared in these pages last November (page 340), Mr. R. G. Thwaites alluded to seedling plants of Dendrobium Brymerianum × D. nobile nobilius which were said to be in existence. We do not know the whereabouts of these seedlings, but Mr. Thwaites and others will be glad to hear that a nearly identical hybrid has now flowered, in the collection of H. J. Hunter, Esq., Grange Loan, Edinburgh. Mr. Hunter writes:—"I am sending you a bloom of Dendrobium Brymerianum, seed parent, crossed with D. nobile, pollen parent. You will observe that the prepotency of nobile has eliminated the features of Brymerianum to a considerable extent; still, enough remains to render the cross interesting. The flower was fertilised in March, 1894, the seed sown in March of the following year, and the plant flowered in April, 1902." This is extremely interesting, especially when we remember the large number of crosses attempted by Mr. Thwaites, without success, and it should encourage him and others to persevere.

Dendrobium × Hunteri.—We now come to the characters of the hybrid. The flower sent bears a general resemblance to a light form of D. nobile—rather smaller, probably because weak at the first time of flowering—with a distinct zone of bright yellow round the light maroon blotch; but there is no trace of the remarkably fringed lip of D. Brymerianum, nor can the colour of this parent be detected in the sepals and petals. These organs are narrower than in D. nobile, and all of them have a distinct twist, the cause of which is not quite apparent. The sepals are slightly over 1¼ inches long, by 4 to 5 lines broad, and delicate blush pink in colour, and the petals are 8 lines broad, and blush pink in the upper half, but paler below, which paler colour extends right round the margin, and thus the light pink area fails to reach the margin, a character which is at least unusual in D. nobile. The lip has the general shape of D. nobile, but is much more open, and the side lobes do not quite meet at the base. The apex is recurved, and the greatest breadth at present

scarcely an inch. The blotch is distinctly obcordate in shape, and bright maroon in colour, distinctly feathered at the sides, and nearly white in a broad central line at the base. We have gone into the matter in some detail, for it is a most remarkable hybrid, and had D. nobile been the seed parent one might almost have classed it among so-called "False Hybrids." Still the differences are very marked. We congratulate Mr. Hunter on his success, and shall hope to see flowers again next year.

CALENDAR OF OPERATIONS FOR MAY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperatures may now be increased in the various departments, and the following will serve as a guide during the summer months :—

Warm House :—Night, 65°-70° ; Day, 70°-80°.

Intermediate House :—Night, 60°-65° ; Day, 65°-70°.

Cool House :—Night, 55°-60° ; Day. 60°-65°.

The weather of the past month has been very changeable, and will have given the Orchidist an anxious time in the proper manipulation of shading and ventilation. However, we may now look forward to having more settled conditions, and favourable to the development and growth and flowers. The houses will begin to present a gay appearance with all kinds of Orchids, for during this month we usually get the best display of the year.

THE WARM HOUSE.—Most of the plants in the warmest divisions will by this time have been set going, and should have every attention and encouragement in order to secure the best results. Damping down frequently will be necessary during warm weather, and on fine days the plants, such as Dendrobiums, Vandas, Cypripediums, &c., will greatly benefit by being lightly sprayed over in the early morning. Admit plenty of air by means of bottom ventilators, in order to keep the atmosphere in a sweet and healthy condition. On very hot days it will perhaps be necessary to open the top ventilators; this should be done with judgment, and then only for a short time during the middle of the day. This house should be closed early in the afternoon, so that the temperature may rise with advantage, and the shading should be removed as soon as this can be done without harm resulting to the plants. Maintain sufficient warmth in the pipes to keep the necessary temperature during the night.

THE CATTLEYA HOUSE.—This house will offer a grand display during the next few weeks, with such species as Lælia purpurata, Cattleya Mossiæ, and C. Mendelii, together with the numerous hybrids derived from these and other parents. They should have every encouragement at the present time, in order to develop their flowers satisfactorily. Plenty of work will be found in attending to the various species as these come into condition

for repotting or top-dressing. Give little water to newly potted plants until they have recovered from root disturbance, and their wants can be supplied by occasional moistening of the surface, and with damping amongst the receptacles. Cattleya and Lælio-cattleya hybrids not in need of new receptacles may have to be top-dressed, and should have the old material removed and replaced with new, giving the whole a good watering when finished. C. Warneri and Gaskelliana will have growth in a forward stage, and may have water afforded more freely. They are both summer flowering and very desirable additions to this family. The former should after flowering be given a light airy position in this house, and be kept on the dry side. C. Lawrenceana will have done blooming, and may now be kept in a resting state for some time yet. When new growth commences, if required, it may be repotted or otherwise renovated as its needs require. Damping down the stages and floors will have to be done frequently, in order to secure a nice genial growing atmosphere, and air should be given judiciously, in accordance with outside conditions. The shading should be removed when possible, and the house closed early in the afternoon, damping down when this is done. Little fire-heat will be necessary during the day, except in dull weather, and sufficient only at night to prevent the temperature from falling below 60°.

THE MEXICAN HOUSE.—Most of the Lælia anceps will have commenced new growth, and may now be freely syringed morning and afternoon, an operation they undoubtedly enjoy. On very hot days this can be done frequently, and should be carried out until growth is nearly completed. Give air in abundance, and shade during the hottest part of the day.

THE COOL HOUSE.—This house will have a very pleasing effect for some time to come, what with Odontoglossums, Masdevallias, Epidendrum vitellinum, Ada aurantiaca, Cattleya citrina, and a host of other beautiful flowers which go to make such a grand display at this season. This house will require to be kept well shaded for the next few months, which will aid in keeping the atmosphere cool, and by judicious ventilating and damping down tend to the promotion of free healthy growth.

VANDA TERES AND V. HOOKERIANA are both rather shy flowering species. The former is now showing for flower, and when this is passed they should be repotted. Secure each to a stick, place in boxes two-thirds filled with drainage, and surface the whole with picked living sphagnum moss. When finished they should be given a high position at the end of warmest house. They require a strong moist heat, with plenty of sunshine when growing, and a frequent application of the syringe.

DENDROBIUMS.—Where a great many Dendrobiums are grown, a house is usually set aside for them, and when this can be done it is very advantageous. The majority will have been repotted or renovated as required

and be growing away freely. Water must be carefully applied whilst the roots are being emitted from the base of the young growths, and until they get a good hold of the compost, as they are very liable to damp off if kept too moist after being repotted. Dendrobiums Phalænopsis, bigibbum, and superbiens will now be in need of fresh material, either in the way of a top-dressing or repanning, as also will D. formosum and D. × formoso-Lowii, all of which are commencing to grow freely. As growth develops the syringe may be freely applied, taking care to get well underneath the foliage, as this will aid in keeping down attacks of red spider and thrips, two most undesirable pests to have on their tender foliage. A few plants will yet remain to be done when out of flower, and amongst them may be mentioned D. thyrsiflorum, D. densiflorum, D. Dalhousianum, D. fimbriatum oculatum, and D. clavatum. Avoid, however, potting where this is not necessary; on the other hand never be afraid to repot when this is desirable, and the grower will be able to tell the proper thing to do by a glance at the plant, or by examining the surface compost. Dendrobiums enjoy the benefit of the morning and afternoon sun, shading from the hottest rays. Close the house early in the afternoon, damping down the paths and stages, and remove the shading as soon as this can be done without harm befalling the plants. This will cause the temperature to rise sufficiently to maintain a nice growing temperature, and will enable the grower to dispense with a large amount of fire heat, a most unnecessary evil, and one to be avoided at all times.

THRIPS.—A sharp look out must be kept on the young growths of the various plants for thrips, and fumigation must be resorted to at once, using that excellent preparation XL.All, where this can be done. I should advise the use of this compound at least once a fortnight.

ORCHIDS FROM HIGHBURY.

SEVERAL very beautiful Orchids are sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Cattleya Schrœderæ is represented by a three-flowered inflorescence of one of the finest forms we have met with, the flowers being perfect in shape, and the petals 3 inches broad. The colour is blush pink, with a bright purple zone round the deep orange disc. Lælio-cattleya × highburiensis is said to have been exceptionally good this season, and a splendid nine-flowered inflorescence is sent in proof of this, the colours being also very rich. A good flower of L.-c. × Ballii is also sent, and it is curious to note that in the preceding hybrid the purple of C. Lawrenceana has largely oblitered the orange-yellow of L. cinnabarina, while in the present one the influence of C. Schrœderæ has chiefly affected the shape, the colour being

rich orange-yellow. The contrast between the two hybrids is remarkable. L.-c. × Ascania (C. Trianæ × L. xanthina) is a pretty little hybrid in which the colour influence of the pollen parent decidedly preponderates. We may also note an inflorescence of the true Dendrobium Farmeri, and a flower of the charming Vanda teres candida, a variety which was figured at page 233 of our eighth volume.

THE HYBRIDIST.

DENDROBIUM × ACIS.—A very pretty hybrid raised in the collection of F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, from D. nobile and D. × Schneiderianum. It bears a general resemblance to D. × Ainsworthii, and the sepals and petals are light blush, with the lip well expanded, and the disc light maroon, with a feathered margin and darker veins.

EPILÆLIA × SYLVIA.—A very interesting hybrid raised by Messrs. Charlesworth & Co., from Lælia cinnabarina and Epidendrum Cooperianum. It is now in the collection of Sir Trevor Lawrence, and the inflorescence has been sent by Mr. White. The habit and structure of the flower are almost entirely those of the Epidendrum parent, but the sepals and petals are much more acute, attenuated to nearly 1¼ inches long, and have some of the colour of the Lælia parent. The lip is broadly three-lobed and reddish purple in colour.

LEPTOLÆLIA × VEITCHII.—A very interesting little hybrid raised by Messrs. James Veitch & Sons, from Leptotes bicolor ♀ and Lælia cinnabarina ♂, and exhibited at the R.H.S. meeting on April 22nd. It most resembles the Leptotes parent in habit, but the inflorescence is more elongated, and the flowers of a rosy salmon tint.

LÆLIA × CORONET.—A handsome hybrid from Lælia cinnabarina ♀ and L. harpophylla ♂, of which a fine inflorescence has been sent from Messrs. Charlesworth & Co. It is fairly intermediate between its parents, though surpassing them in some respects, having a splendid constitution and flowering very freely in a small state. Flowers of it are also sent by the Right Hon. J. Chamberlain, M.P., and E. F. Clark, Esq., of Teignmouth.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during May, on the 6th and 20th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Great Annual Flower Show will be held at Inner Temple Gardens, Thames Embankment, on Wednesday, Thursday, and Friday, May 28th,

29th, and 30th. The Orchid Committee will meet on Wednesday, May 28th, at 10 a.m., and the exhibition will be open to Fellows at 12.30 p.m. As on previous occasions, Silver Cups and Medals will be awarded according to merit.

The dates of the May meetings of the Manchester and North of England Orchid Society are May 1st and 15th. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 3 p.m.

We have received the Catalogue of Hardy American Plants of Mr. Harlan P. Kelsey, of Boston, Mass., U.S.A., which is illustrated with a number of charming little photographs from nature. Over a dozen Hardy Native terrestrial Orchids are offered for sale, including six Cypripediums, one of which, the beautiful C. spectabile, is illustrated.

They are described as "a most charming group of showy and curious plants, and easy to grow if given proper conditions of soil and location. But they are shy wildlings, and many of them rare and local. A rich, peaty, rather moist soil, with shade, best favors the growth of most species; and some love the bog even, such as the delightful Cypripedium reginæ, the dainty Pogonias, Calopogon and Habenarias, though all these thrive well in the rich shady garden."

The February number of the *Dictionnaire Iconographique des Orchidées* contains figures of A ranthus ramosus, Angræcum Scottianum, Cattleya × Chamberlainiana, C. × Wavriniana) Lælia × Lindleyana var. purpurea, Odontoglossum grande var. Pittianum, Platyclinis filiformis, P. glumacea, Promenæa stapelioides, P. xanthina, Sobralia virginalis var. lilacina, Stanhopea Reichenbachiana, and Trichopilia crispa var. marginata.

Mr. William Murray, for many years head gardener to Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne, has left that gentleman's service, carrying with him many tokens of the esteem in which he was held by his late employer, and friends in the neighbourhood. Mr. Cookson and family presented him with a handsome writing desk, and the employees at Oakwood gave him a clock. The Gardeners' Mutual Improvement Society also gave him a clock, and Mrs. Murray a gold brooch. In all they received upwards of forty presents. Mr. Murray has joined his brother, who is carrying on business at 145, Queen Victoria-street, London, under the name of The British and American Well Works, the business being the raising of water from Artesian Wells by compressed air in place of pumps. We wish him every success in his new sphere.

Mr. Murray is succeeded at Oakwood by Mr. H. J. Chapman, late gardener to R. I. Measures, Esq., Cambridge Lodge, Camberwell.

Two handsome forms of Odontoglossum × Rolfeæ are sent by M. Ch. Vuylsteke, Loochristi, Ghent. One is very heavily blotched with dark red-purple, on a cream-coloured ground, the blotches being more or less confluent. The other is rather larger, measuring 3¼ inches across the petals, and the ground colour is more tinged with light yellow, and the spots much smaller and far less numerous.

Flowers of the handsome Paphiopedilum × Cowleyi magnificum, and of Odontoglossum crispum Alpha, are sent from the collection of R. Tunstill, Esq., Monkholme, near Burnley. The latter received a First-class Certificate from the Manchester Orchid Society on April 3rd, and is beautifully spotted with light red-brown on a white ground, the spots being rather small and numerous.

The beautiful Cœlogyne Sanderæ has recently flowered with great effect at the Birmingham Botanic Garden. A large plant has produced nine spikes of flowers, and a smaller plant two spikes. The species is most allied to C. barbatum, and has pure white flowers, with an orange disc to the lip, on which are three rows of dark brown hairs, giving a very effective contrast. Mr. Latham originally received the plant from Burma, and first flowered it in 1892.

A large and very richly-coloured Paphiopedilum is sent from the collection of R. le Doux, Esq., West Derby, Liverpool, by Mr. S. Davenport. In its general shape and rich colour it strongly recalls P. barbatum, which was probably one of the parents, and the other may have been P. ciliolare, as there is a row of small warts down the outer margin of the petals, which are also closely and beautifully fringed, and the other characters are such as would be expected from such a cross. The point may be cleared up hereafter.

ORCHID PORTRAITS.

Angræcum sesquipedale.—*Journ. Hort.*, 1902, xliv., pp. 336, 337, with fig.

Cattleya × Clymene.—*Lindenia*, t. 761.

Cattleya labiata var. perfecta.—*Lindenia*, t. 766.

Cattleya × memoria Bleui.—*Lindenia*, t. 764.

Cypripedium × exul (ternary flower).—*Gard. Chron.*, 1902, xxxi., p. 203, fig. 63.

Cypripedium × grossum.—*Wien Ill. Gart. Zeit.*, 1902, p. 109, t. 1.

Cypripedium × purum.—*Amer. Gard.*, xxiii., p. 189, fig. 43.

Cypripedium × Stepmaniæ.—*Lindenia*, t. 765.

Dendrobium Phalænopsis var. Lindeniæ.—*Lindenia*, t. 778.

DENDROBIUM WARDIANUM FOWLERI.—*Gard. Chron.*, 1902, xxxi., p. 125, fig. 37.

DISA × LANGLEYENSIS.—*Gartenflora*, 1902, p. 113, t. 1496, fig. 1, 2.

DISA × VEITCHII.—*Gartenflora*, 1902, p. 113, t. 1496, fig. 3, 4.

LÆLIA ANCEPS HOLLIDAYANA CRAWSHAYANA.—*Gard. Chron.*, 1902, xxxi., p. 123, fig. 36.

LÆLIA DIGBYANA × CATTLEYA SCHRŒDERÆ.—*Gard. Chron.*, 1902, xxxi., pp. 235, 239, fig. 75.

LÆLIA × DIGBYANO-PURPURATA EDWARD VII.—*Gard. Chron.*, 1902, xxxi., pp. 206, 207, fig. 68.

LÆLIO-CATTLEYA × CHOLETIANA.—*Gard. Mag.*, 1902, p. 214, with fig.

LÆLIO-CATTLEYA × PRINCE LEOPOLD.—*Rev. Hort. Belge*, 1902, p. 73, with plate.

ODONTOGLOSSUM × ADRIANÆ MEMORIA VICTORIÆ REGINÆ.—*Journ. Hort.*, 1902, xliv., p. 357, with fig. VAR. MRS. R. BENSON.—*Gard. Chron.*, 1902, xxxi., p. 249, fig. 78; *Journ. Hort.*, 1902, xliv., p. 313, with fig.

ODONTOGLOSSUM CRISPUM RAYMOND CRAWSHAY.—*Gard. Mag.*, 1902, p. 193, with fig.

ONCIDIUM VARICOSUM VAR. MOORTEBEEKIENSE.—*Lindenia*, t. 767.

RENANTHERA MATUTINA, Lindl.—*Lindenia*, t. 763.

VANDA PARISHII, Rchb. f.—*Lindenia*, t. 762.

VANDA SANDERIANA.—*Le Jardin*, 1902, p. 103, fig. 52.

ZYGO-COLAX × WIGANIANUS SUPERBUS.—*Journ. Hort.*, 1902, xliv., p. 313, with fig.

ERRATUM.—The reference to "Mrs. Alfred Mostyn" at p. 96 should be corrected to "Mrs. W. Mostyn."

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

R. E. H. Chysis Limminghei and Masdevallia ephippium. The reply was accidentally overlooked last month.

G. S. The illustrations in question are not photographic, but only half-tone reproductions of drawings, and, while faithfully reproducing the artist's work, will not, unfortunately, bear minute comparison with the originals.

W. F. O. Dendrobium Draconis. The Lycaste unavoidably stands over till next month.

G. B. Oncidium luridum.

BETA. Many of these forms are individuals, not varieties, and in some cases a microscope would be necessary to detect the differences. Why trouble to define them?

W. A. Paphiopedilum × Cythera and P. × Leeanum.

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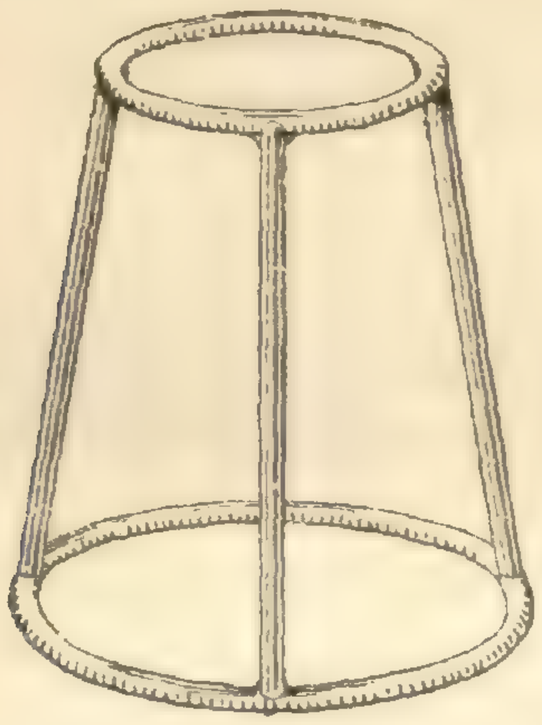

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The next MEETING of the COMMITTEE for the purpose of adjudicating upon the Orchids submitted will be held on May 1st and 15th, 1902, at 12 o'clock prompt. Open to members from 1 o'clock to 3 o'clock p.m.

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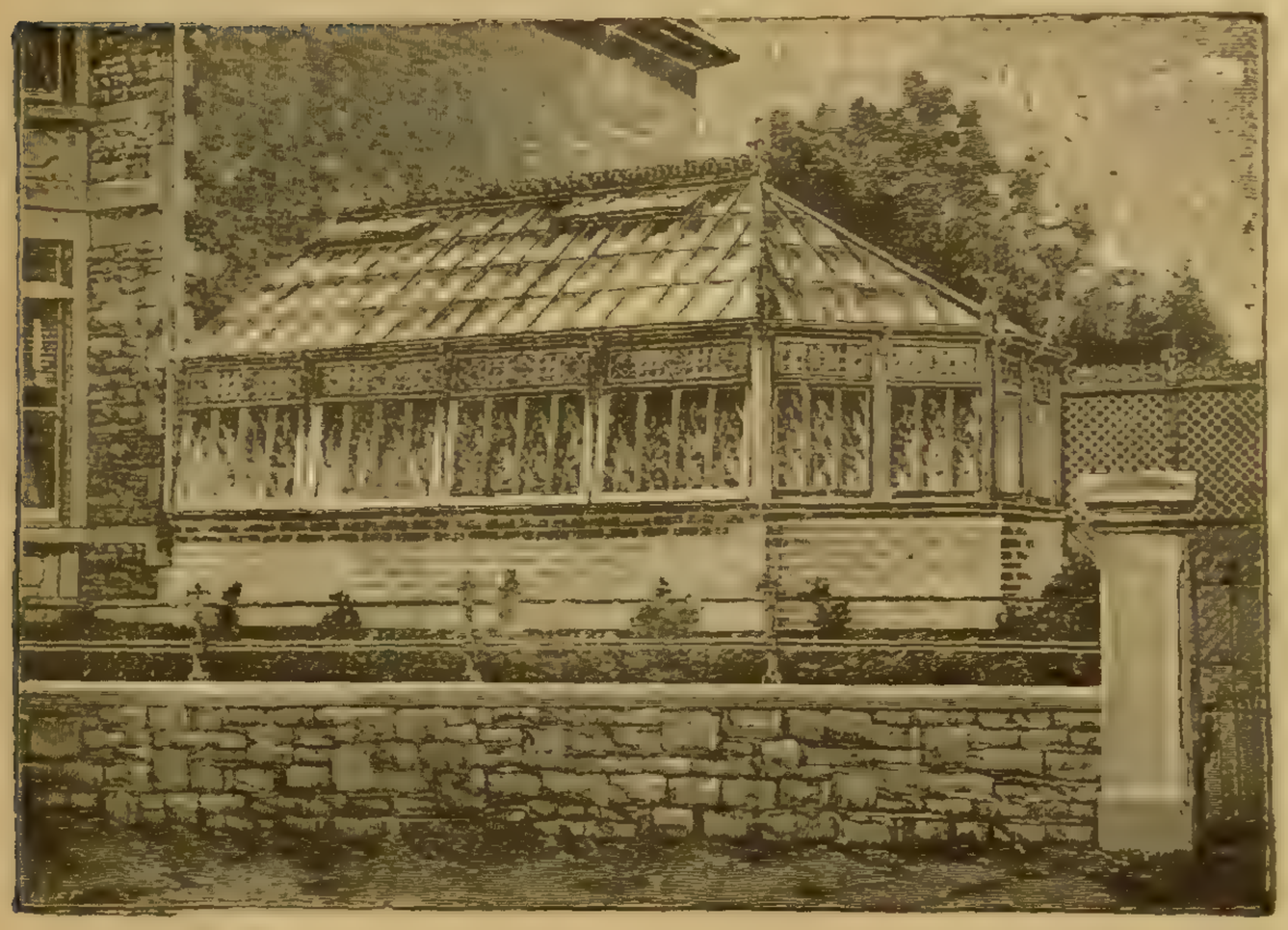

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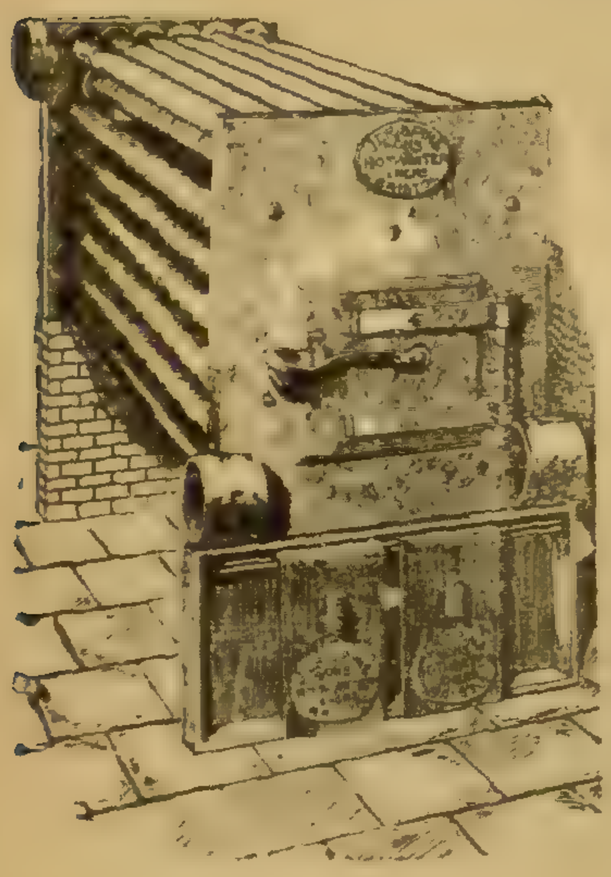

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *JUNE*, 1902. [No. 114.

DIES ORCHIDIANI.

THE Temple Show is the great event of the month, and falls rather late on this occasion, when most of my notes are already written. But a glance round the tents shows that the Orchids are as numerous as ever, and the quality excellent, I think above the average. A search for actual novelties reveals rather less than usual, perhaps, but several of the Odontoglossums in M. Vuylsteke's fine group are unfamiliar, and rather puzzling as to their origin. There was also a pretty novelty in Mr. Rutherford's group, the result of crossing O. Harryanum and O. × excellens, and a striking hybrid between Brassavola Digbyana and Lælia tenebrosa in Messrs. Charlesworth's growth. And, if not actually new, there were two very remarkable plants which I have not previously seen in anything like such fine condition, namely, Odontoglossum crispum Lady Jane and Cattleya intermedia Aquinii, staged side by side. Sir Trevor Lawrence also staged a charming little group of rarities. I may have something more to say on the subject next month.

"WHAT'S IN A NAME?—. . . A name should be used as a means of distinction, a mere label, and nothing else. . . . Directly we begin to make the name significant by conveying some information about the nature of the plant, its history, its native place, or what not, so soon do we begin to pile up confusion and trouble for the future."

What can be the trouble? Has someone discovered that Vanda cœrulea is not blue? or got confused about Renanthera coccinea, because other species of the genus have scarlet flowers? Has it been found that Brassia ocanensis is not limited to the province of Ocana? or perhaps that Cattleya Mendelii was not originally discovered by Mendel, but only flowered in his collection? No, it is none of these things. The trouble is that some plant has got a name, which is now meaningless or ungrammatical, because the fact has been lost sight of, that the "name"

originally consisted of two words, connected by a conjunction, and a long essay becomes necessary to put the matter straight.

Now the object which the writer had in view was how to avoid piling up confusion and trouble in the future—a thoroughly praiseworthy object—and one naturally assumes that the name which called forth such comments did really convey some sort of information about the plant, either its history, native place, raiser or discoverer, the colour of the flower, shape of the leaves, or at least *some* little item of information which had led to all this trouble. But no, it is none of these things! The name had no connection with the plant in any shape or form—but even this did not save it from confusion. Happily it was not an Orchid, but it might have been all the same, for the principle applies as well to one plant as another.

The moral which I should have drawn from such a case would have been quite different. I should have suggested that, whenever possible, names should have some significance, some connection with the plant, or, if purely complimentary, that they should at least be drawn up according to some recognised standard, and with some slight element of finality about them. If the writer would only realise that the confusion arose not from following a salutary rule, but owing to the departure from it, there would be more hope of improvement. The question once asked, "Shall we ever have a universal language?" was much more to the purpose.

I would commend to the writer's notice some very pertinent remarks which appeared in a recent issue of *Nature* (in a review of a book), which are sufficiently appropriate to repeat here:—

"In the chapter on 'Orchid Names' the author follows the popular lead by finding fault with the existing Orchid nomenclature, and with the inevitable result that he is unable even to hint at a better method than that for which we have to thank a long line of patient and clever men, who have been working on the subject in all ages since the classification of plants began. It should be remembered that the question is not as to whether the name is good or bad Latin or Greek, expressive or not expressive, but that it is intended as a means of identifying the plant in every civilised quarter of the globe, an end which no system of popular names could accomplish, but which has worked under the present system of scientific names in a marvellously satisfactory manner. To apply it to his own case. Deprived of the scientific names he finds fault with, Mr. Boyle's book would have been impossible in its present useful form."

I may add that, not having seen the book, I am ignorant of the precise

nature of the criticism to which the above is a reply, but as a protest against the modern go-as-you-please nomenclature—I will not dignify it with the name of system, for system is what it is chiefly devoid of—it will serve its purpose.

Some time ago I alluded to the rapid progress being made in raising hybrid Orchids, and the flowering of a hybrid from Dendrobium Brymerianum, as recorded at page 153, must be regarded as a distinct achievement, seeing that so many previous attempts have resulted in failure. I hope the subject will now be followed up, so that we may find out where the difficulty lies, and Mr. Hunter himself might tell us a little more of his experience with the species. It may have been just one of those happy hits which are as difficult to explain as to repeat, but this can only be proved by experiment. If the cross were repeated under similar conditions, and attempted in other collections, we might gain further light on what is a very interesting question.

ARGUS.

THE GHENT INTERNATIONAL SHOW.

WE have received the Catalogue of the 15th International Horticultural Exhibition to be held at Ghent, from April 18th to 26th, 1903. The second group is devoted to Orchids, and contains no less than 76 Classes, the prizes consisting of Gold, Silver-gilt, and Silver Medals. For the best general collection of Orchids a Gold Medal is offered by the King of the Belgians, the second and third prizes also being gold medals of the value o 200 and 150 francs. For the best 100, 75, 50, and 30 Orchids, Gold Medals are also offered, both to amateurs and nurserymen. A Williams' Memorial Medal is offered for the best 15 specimen Orchids, limited to amateurs. Other classes include the most varied collection, single examples of each species only, the best 30, 20, and 10 Cool Orchids, the best six, three, and single novelties of recent introduction. We note also collections and single hybrids, collections of Guatemalan and Colombian, Brazilian, Mexican, and Indian Orchids, Anœctochili, Cypripedes (including the best hybrid not yet in commerce), Cattleyas and Lælias (ditto), Dendrobes, Masdevallias, Odontoglossums, Phalænopsis, Vandas, terrestrial Orchids, and the best examples of nearly all the popular genera. In other groups we note prizes for the best Orchid house, and the best arranged basket of cut blooms. With such a large and varied prize list there should be a fine display, and we hope to see some of our English collections represented. Particulars may be obtained from the Secretary, M. Fierens, Ghent.

HABENARIA MEDUSÆ.

A VERY remarkable species of Habenaria has just flowered in the establishment L'Horticole Coloniale, Brussels, which is said to have been found in an importation of plants from Java. If anyone could imagine a form of the South African Bartholina pectinata having a white lip, and the flowers borne ten together in a raceme, he would have a very good idea of the general appearance of this plant. It evidently belongs to Habenaria Medusæ, a species described by Kränzlin in 1893 (*Engl. Jahrb.*, xvi., p. 203), from a specimen in the Leyden Herbarium, marked "Java? ex herb. Blume." It was afterwards figured (*Xen. Orch.*, iii, p. 149, t. 286, fig. 1), and the present plant agrees well, the chief difference being that the divisions of the lip are more numerous, but it must be remembered that the drawing has been restored from a dried specimen. The plant is comparatively dwarf—the drawing shows it under a foot high, with three oblong leaves near the base, and an inflorescence of about eight flowers. The living raceme has ten flowers, whose most conspicuous part is the remarkably dissected lip, which measures over 1½ inches broad, and is divided almost to the base into about forty narrow white filaments, which are somewhat curved, and radiate in the shape of a fan, while at the base is a slender spur, nearly two inches long. The ovate, spreading lateral sepals are also white, and about four lines long, while the petals are united with the dorsal sepal to a concave hood of about the same length. It is to be hoped that the plant will prove amenable to cultivation, for it is a very striking object, and would form a suitable companion to the handsome H. militaris and H. carnea.

R. A. ROLFE.

OBITUARY.

V. FAUS, well known as one of the most skilled Orchid growers in the country, and for several years in charge of the Orchid department of Julius Roehrs, at Rutherford, N. J., is dead. Mr. Faus underwent a surgical operation on Tuesday last and died on the next day. He was a man of large experience, both in this country and in Europe, having been at one time with Baron Hruby's famous collection in Austria, and was formerly Orchid grower to George Schlegel, at Bay Ridge, N.Y., and had a remarkable knowledge of varieties. Under his care the Roehrs' commercial collection has progressed into its leading position of to-day. His death lays open an important position for a capable Orchid grower.—*American Gardening.*

Cypripedium × Fausianum, a hybrid from C. × Dauthieri and C. × calophyllum (*Orch. Rev.*, i. p. 286) commemorates the deceased gentleman.

CULTURE OF ORCHIDS IN LEAF-MOULD.

MR. JOHN E. LAGER, of the firm of Lager & Hurrell, has made an interesting contribution to the above subject, in a recent issue of the *Florist's Exchange*. A previous writer had strongly advocated the necessity of feeding Orchids, and Mr. Lager remarks that they have practised it for several years with great success, and he is glad to see that others are beginning to realise how necessary feeding is if one wishes to prolong the life of these plants, and make them not merely exist, but grow with luxuriance. The use of leaf-mould exclusively he thinks answers the purpose in Europe, but he doubts if it will ever fill the bill in America. The light is much more intense than in Europe, and the sun, even in winter, is very strong. The result is, more activity on the part of the plants all the year round, and, in order to hold their own, and grow, feeding is absolutely necessary. The strong light and sun mean a greater quantity of water at the roots and overhead, and to supply this the hose is generally used, labour being too expensive to allow of the use of water pots, and the watering of plants here and there that happen to be dry. And with the other method the water supplied would not be half enough under the climatic conditions. They have to use plenty of water, with the result that the leaf-mould in a very short time becomes sour, and the plants lose ground, while the roots rot.

"We have tried several kinds of epiphytal Orchids," he remarks, "notably Cattleyas and Lælias, in leaf-mould, and invariably we have had to shake the plants out of the compost, and repot in fibrous peat or sphagnum, after which we supply the food in liquid form principally. We go one better in giving nourishment to our Orchids, inasmuch as we give them a variety of different manures (principally in liquid form), and they enjoy it, to say the least; in fact, I have failed to find anything they do not like, providing, of course, that common sense is used, and the fertilisers prepared or cured in such a way as to remove rankness or possible acids. Orchids are like human beings, the more variety of food they get the better they grow.

"In connection with this, it might be of interest to take a look at these plants, where and how they grow in the tropics. Treating exclusively of epiphytes, we find them growing on live trees, notably on Quercus, Cinchonas, and Melastomaceous trees (at least in the Western Hemisphere), most frequently on the naked bark of the trees; at other times in the crutches of the trees or on the branches, where not only leaves, but a great number of bugs, worms, insects, and animals of all kinds accumulate, the latter thus forming, probably, just as much a part of the nourishment as the leaves. I never saw a plant taken off a tree but what there were

great quantities of remnants of animal life in all stages of decomposition under the plant. Now, if this takes place on the trees, how much more does it not take place on the ground, in countries where vegetation and animal life are so rank and prolific, with the result that the plants absorb the greatest variety and quantity of food already prepared in a gaseous form; hence it is easily explained why plants growing on the naked bark of a tree trunk are just as luxuriant as those that happen to be placed in positions where different matter accumulates round the plant. The surrounding atmosphere is the store-house from which these plants absorb the matter just mentioned, and I may add that the endless process of decomposition in those regions does not mean a few kinds of leaves, but every imaginable kind, as well as animal life.

"In a greenhouse, however, things are different; inside its glass roof there is absolutely nothing in the way of vegetation, or animal life, to decompose and form the nourishment which these plants enjoy in their countries of origin. Besides, in culture, we do not want Orchids to send their roots several feet from the baskets or pots looking for nourishment; our aim is to keep the roots at home in the pot or basket, and this they will do, and only will they do so when they have enough nourishment in the compost, when they rarely go outside. On the other hand, or whenever starved, the roots are liable to roam about for yards, while the plant and its flowers are rarely perfect.

"Peat and moss, necessary as they are for us here, contain but little food, except when fresh; add to this repeated doses of clean water, and we have, more or less, all that is done to these plants; is there then any wonder so many complain that the epiphytal Orchids are short lived?"

Mr. Chas. H. Totty makes some very similar remarks with respect to the American climate and method of watering, remarking also on the wide differences in the texture of different leaf-moulds, and its limitations. For example, the use of leaf-mould necessitates culture in pots, which must stand on the stage, and thus fewer plants can be accommodated than when some are grown in baskets or on fern stumps, and suspended. He also remarks that plants cultivated in Belgian leaf-mould, though in fair condition when received, showed very limited root action.

As to American methods he states that they have in America a fine grade of peat which is an excellent potting medium, and which is used pure for Cypripedes and such like things, leaving it low in the pots so as to permit of a top-dressing later. For Cattleyas the hard fern root—the core, which cannot be pulled apart—is chopped into pieces large enough to fit the basket or pan, and then pounded into the receptacle, and the Cattleya nailed securely thereon. This is the method of potting imported plants.

Another excellent method is to take several pieces of the hard core of the Osmunda root, and make it into a solid ball, a foot long by seven or eight inches in diameter, on to which the Cattleyas are nailed by means of wire staples. Plants are also nailed to boards, with merely a light layer of peat between, a method securing economy of time and space.

"All our Orchids," he remarks, "are top-dressed, when growth commences, with a mixture of chopped sphagnum leaf-mould, and some fertiliser, as bone-flour, Clay's or other concentrated manure. The leaf-mould is used in the proportion of one part to four parts of moss. Experiments have convinced me that this method is far preferable to using leaf-mould entirely. The root action of the plant in this mixture is very vigorous, and if you can only get the roots moving the top will grow, as a matter of course. This top-dressing is applied wet, and, when thrown on, sticks wherever it falls. It can, consequently be applied to plants growing in any position."

The days of the wretched looking Cattleya gradually dwindling to a condition of innocuous desuetude are gone by. The bulbs the plants make under artificial culture, when liberally treated, are far superior to the bulbs they produce in their native home. This we must accept as convincing evidence that the Orchid *can* assimilate food supplied to it as easily as a geranium, and with as beneficial results. Occasionally, where only a few plants are grown, they may be seen in a miserable condition, but in our large establishments, where plants are counted by the thousand, they are in perfect health and vigour. Almost every grower has his own pet theory, and supplies his plants with sheep manure, bone flour, cow manure, or something else; but they all use some kind of manure, and as long as the plant gets a sufficiency of nitrogen and other essentials, where it gets them from, or how, is unimportant.

The American Orchid grower is head and shoulders above his European compeer in the size and number of the flowers he can produce from a given space, and while, of course, some credit is due to the climate, most of the credit is due to the grower, who is always ready to depart from the old rut when experiment convinces him that he can grow his plants better some other way.

Plants have constant need of nourishment during the period of growth. Supply that need and your plants will be certain to give satisfaction. Neither the Belgium grower, with his leaf-mould, nor the American grower, with his fertilisers, can be criticised if each produces satisfactory results financially and otherwise. The spirit of progress is in the air, and if the advance in the culture of Orchids is as pronounced in the next decade as it has been in the past one, great things may be confidently looked for.

Mr. William Matthews, of Utica, New York, after speaking of the large amount of water that has to be used, even in winter, and the absolute necessity of a porous though firm potting material, states :—" About two years ago I purchased some plants of Lælia Jongheana, already potted in the Belgian style. They were placed with other Lælias, and after six weeks' trial I found they were doing poorly. On examination, I discovered that instead of having good root action, the roots were badly decayed. I at once shook out all the plants, potted them *à la* American—fern roots well shaken out to about the consistency of coarse horse-hair, with plenty of drainage, in 4 inch pots ; potted firmly ; and after a few weeks again potted them in the same material in 4 by 6 inch pans. The plants have roots all through the pots, and are now showing finely for flowers later on.

I have just had the same experience with Oncidium varicosum and Odontoglossum citrosmum. Neither of these seems to thrive except on fern root. This I use for all kinds of Orchids—except terrestrial ones ; as I have no time to coddle or experiment with Orchids, and am perfectly satisfied that they all can be grown in good clean fern root, without much care, I think that the best method to pursue.

Regarding the use of manurial fertilisers, I have never found any benefit from it ; good rest and preservation of the roots are the main points in Orchid culture, and if you want to perpetuate the plants do not give them soggy potting material."

ARACHNANTHE MOSCHIFERA.

UNDER the heading, " Orchid notes from Alipur," *Indian Gardening* for May 8th speaks of the above plant (which it will be remembered was figured at page 88 of our March issue) as follows (p. 327) :—" *Arachnanthe moschifera*. This, as its name implies, is as like a coloured spider as it is possible for a flower to be. It comes to us from Java. The flowers are large, lemon coloured, spotted and barred purple, and for all the world like huge spiders. They are delicately scented like musk. It is one of the rare Orchids. The Superintendent of the gardens has crossed it with *Renanthera coccinea*, and the seeds, when gathered, will, if they germinate, produce an interesting hybrid."

The other Orchids mentioned as flowering in the gardens of the Agri-Horticultural Society of India, at Alipur, are, Dendrobium formosum (the true plant) flowering profusely, Aërides odoratum and Fieldingii, Saccolabium guttatum and S. Blumei, Phalænopsis violacea, Bletia Shepherdii, Rodriguezia secunda, Cypripedium niveum and C. exul. The latter is called a " new species, unnamed," a remark which we do not understand, for the name is given, and the species has been known for ten years.

BRASSOLÆLIA × HELEN.

We have now another handsome hybrid from Brassavola Digbyana to record. Lælia tenebrosa is the seed parent, and the raiser M. Ch. Maron, to whom we are indebted for the photograph here reproduced. M. Maron writes that the sepals and petals are reddish brown, much like those of some forms of Lælia tenebrosa, and slightly mottled and curved, while the lip has the characteristic shape of Brassavola Digbyana hybrids, with the edge somewhat fringed, and the ground colour light violet, with some carmine lines, and the throat yellowish. The habit of the plant and shape of the

FIG. 19. BRASSOLÆLIA × HELEN.

flower are well shown in the illustration, and the influence of B. Digbyana is very apparent in both, while the dark sepals and petals, derived from L. tenebrosa, introduce a somewhat novel character among Digbyana hybrids. The colours of the lip are not apparent in the figure, probably owing to the well-known fact that shades of blue and violet come out nearly white in photography, unless a yellow screen is used. M. Maron must be congratulated on having made such an interesting addition to the

ranks of Digbyana hybrids. With respect to the one raised by M. Maron between B. Digbyana and Cattleya Dowiana aurea, which was exhibited at a meeting of the R.H.S. on April 22nd, under the name of Lælio-cattleya × Mrs. J. Lemann, we think the same should be amended to Brassocattleya × Lemanniæ, conformably to rule. We shall hope to see both these interesting plants when they flower again.

We may add that, since the above was written, the hybrid has received an Award of Merit at the Temple Show, the two plants here figured having been included in Messrs. Charlesworth's group.

HYBRID ODONTOGLOSSUMS.

REICHENBACH, if we mistake not, speaking of natural hybrid Odontoglossums, once remarked to the effect that we wanted hundreds of Odontoglossums of known parentage. The day seems slowly but surely approaching when individuals, if not distinct crosses, will have to be counted by hundreds, but we hope that there will be no necessity to write "of unknown parentage," for the difficulty of making them out will be more difficult than in the case of natural hybrids. M. Vulysteke now sends flowers of two more interesting seedlings, but, alas, he writes:—"It is not possible to state exactly their parentage." Again, of O. × Vuystekei, described at p. 99, he adds, in sending another flower:—"I cannot guess its origin. I never fecundated with tripudians, because its flowers are too small." This raises the question of what a hybrid between O. triumphans and O. × Denisonæ (Wilckeanum) would be like. The plant is very different from O. × loochristiense, in which the characters of O. triumphans and O. crispum are combined, but a hybrid composed of half triumphans and ¼ each of crispum and luteo-purpureum should have the dark colour noticed, and might well have the shorter, broader segments also. Future experiments may clear the matter up. As to the other flowers sent, one has almost the broad shape and toothed petals of O. crispum, with a light yellow ground colour, both sepals and petals being very heavily blotched with rich chestnut brown, and the lip brighter yellow with smaller blotches. If not a very fine form of O. × Denisonæ, it may be a hybrid between that and O. crispum. The second flower is smaller, and bears a general resemblance to O. sceptrum, and may have been derived from that and O. crispum, as the lip does not recall O. Pescatorei. The sepals and petals are light yellow in colour, the former being tinged with purple on the back, and the chestnut blotches large, but those on the petals small and numerous. The lip is rather narrower than in O. sceptrum, and has one large red-brown blotch and some small spots. It is unfortunate that the origin of these beautiful plants should remain in doubt.

THE TEMPLE SHOW.

THE great annual Flower Show of the R.H.S.—the fifteenth of the series—was held in the Middle Temple Gardens, on May 28th, 29th, and 30th, and was again a great success. The weather was beautifully fine at the outset, though later in the day, and on the following days, there were some showers, which at times rather aggravated the crowding in the tents, but the atmospheric conditions favoured the plants, which remained beautifully fresh right up to the close. Orchids were present in large numbers, and of excellent quality, and for the most part they were very tastefully arranged. The awards comprised nine First-class Certificates, sixteen Awards of Merit, ten Botanical Certificates, one Cultural Commendation, three Silver Cups, and ten Medals. The Show was honoured by the presence of their Majesties, the King and Queen, who, attended by Captain Holford, went the round of the tents before the public was admitted.

In the following report we have endeavoured to mention the more interesting and rarer plants exhibited. Considerations of space prevent us from giving a full report, which would also be wearisome, for the commoner showy species of the season were well represented in most of the groups.

Sir Trevor Lawrence contributed a remarkable group, the majority being interesting botanical rarities, which were arranged very effectively at the end of the central stage by Mr. White. The following list shows its composition, and the plants to which certificates were given :—Angræcum Moloneyi (B.C.), Aspasia lunata (B.C.), Brassias brachiata and verrucosa, Bulbophyllums Dayanum and a feathery lipped species of the saltatorium group, Catasetum species, carrying a spike of six female flowers, Cirrhopetalum Colletii, Cœlogynes Parishii, Schilleriana, and Swaniana, Dendrobiums cumulatum (B.C.), × formoso-Lowii, × illustre, Johannis, and secundum album, Epicattleya × radiato-Bowringiana, Epidendrums × Clarissa superba, confusum, Ellisii, Endresii, fuscatum, Linkianum, paniculatum, and porphyreum, Eulophia andamanensis (B.C.), Habenaria rhodochila, Lælio-cattleya × Hippolyta Dulcote var., Liparis nervosa, Masdevallias × Cassiope, caudata and var. xanthocorys, × Courtauldiana, deorsum, ephippium, × Geleniana, × Henrietta, × igneo-Estradæ, O'Brieniana, × Rushtoni and var. superba (A.M.), Schrœderiana, × Stella, ventricularia, and Wageneriana, Maxillarias Houtteana, præstans (B.C.), and Sanderiana, Microstylis congesta (B.C.), and Scottii, Nephelaphyllum pulchrum, Odontoglossum crispum (two fine forms), and O. crinitum saphiratum, Oncidium Brienianum, carthaginense roseum (B.C.), luteum (B.C.), and unicorne, Ornithocephalus grandiflorus, Physosiphon Loddigesii, Pleurothallis macroblepharis and ornata, Polystachya pubescens and zambesiaca (B.C.), Promenæa xanthina, Renanthera Imschootiana,

Thunia Bensonæ, Marshalliana, and × Veitchiana, Trichopilia laxa (B.C.), lepida, and rostrata (A.M.), Vanda alpina, and *Zygopetalum* rostratum (F.C. and Cultural commendation). This very interesting group was one of the features of the Show, and attracted a great deal of attention.

Sir Frederick Wigan showed a remarkably fine group, which gained a Silver Cup. It comprised over ninety species, varieties, and hybrids, in the arrangement of which Mr. Young had been particularly successful. Among the more interesting plants we noted Cattleya Skinneri alba with twenty-three flowers, C. intermedia Parthenia, C. Forbesii, C. Schilleriana, and good examples of the showier species, Cœlogyne pandurata with a spike ot eleven flowers, C. asperata, C. Massangeana, and the charming little C. Schilleriana, Lælia grandiflora (majalis) bearing three large flowers on a single spike, L. Boothiana, L. × cinnabrosa, some good L. purpurata, Lælio-cattleya × superbo-elegans, L.-c. × Rex, L.-c. × Helena, L.-c. × highburiensis with sixteen flowers, and others, the graceful Brassia brachiata, Aërides Fieldingii, Brassavola Digbyana, Thunias, a noble specimen of Cymbidium Lowianum, the fine C. × I'Ansoni, Platyclinis longifolia, Maxillaria Sanderiana, Dendrobium Parishii, a fine D. thyrsiflorum, Angræcum Sanderianum, Phalænopsis fuscata, P. Lueddemanniana, P. amabilis, some fine Odontoglossum species and hybrids, including O. × Rolfeæ with a spike of nine fine flowers, Oncidium Marshallianum, O. Gardneri, the graceful O. phymatochilum, O. olivaceum, Cypripediums Druryi, Mastersianum, Lawrenceanum Hyeanum, callosum Sanderæ, hirsutissimum, bellatulum and allies, &c., Houlletia odoratissima, Colax jugosus, Epidendrum campylostalix, Miltonias, Masdevallia simula, M. peristeria, M. coccinea, M. Veitchiana, &c. A First-class Certificate was given to Pholænopsis Sanderiana Wigan's var., a bright rose-coloured form, and an Award of Merit to Cypripedium × Godefroyæ lencochilum pulchellum, in which the markings were rose-purple in colour.

J. Coleman, Esq., also received a Silver Cup for a splendid group, containing many well-grown Cattleyas, Lælias, Odontoglossums, Miltonia vexillaria and Masdevallia coccinea, together with M. Veitchiana, M. cucullata, Cymbidium Lowianum, Cypripedium hirsutissimum, C. Mastersianum, Bulbophyllum Lobbii, Lycaste aromatica, L. brevispatha, Lælio-cattleya × Dido, L.-c. × Sunrise (believed to be from L. flava and C. Gaskelliana), and Oncidium monachicum. Among the Odontoglossums we noted the charming O. ramosissimum, O. × Andersonianum Ruckerianum, with a fine branching panicle of very large flowers, a fine O. polyxanthum, and some good O. crispum.

W. P. Burkinshaw, Esq., Hull, received a Silver-gilt Banksian Medal for a fine group, containing many good forms of Cattleya Mossiæ, C. M. Reineckeana, C. M. Wageneri, C. Mendelii, Thunia Marshalliana, two

plants of the handsome Renanthera Imschootiana, Odontoglossums, Cypripedium Rothschildianum, Lælia cinnabarina, the remarkable Masdevallia muscosa, Lælio-cattleya × Daphne, &c.

J. Rutherford, Esq., Blackburn, received a Silver Flora Medal for a good group, tastefully set up with Asparagus, in which we noted some fine forms of Cattleya Mossiæ, both pink and white, C. × Lawre-Mossiæ, Cypripedium × Annie Measures, a fine specimen of Odontoglossum crispum roseum bearing three strong spikes, a very good O. × Coradinei, and various other good Odontoglossums. Specially interesting was O. × Queen Alexandra (Harryanum × excellens), yellow with dark purple markings, which received an Award of Merit.

J. Wilson Potter, Esq., Croydon, exhibited the remarkabie Odontoglossum crispum Lady Jane in fine condition, which obtained a First-class Certificate.

M. Jules Hye de Crom, Ghent, also received a First-class Certificate for Odontoglossum × Wilckeanum Imperatorium, a remarkably large and very heavily marked form.

F. Wellesley, Esq., Woking, received an Award of Merit for Lælio-cattleya × Zephyra alba, a fine white with a slight tinge of lilac in front of the light yellow disc.

Capt. Laycock, Wiseton, Bawtry, received an Award of Merit for Cattleya Mendelii wisetonensis, a fine blush-white form with carmine-rose lip.

Messrs. Sander & Sons staged a very fine group, culture and quality being excellent, and were awarded a Gold Medal "for Orchids and Caladiums." It contained many beautiful forms of Odontoglossum crispum, a fine O. × spectabile, O. Hunnewellianum, O. × Adrianæ, O. polyxanthum, a fine clump of O. citrosmum, Aërides Houlletianum, Maxillaria Sanderiana, M. luteo-alba, Brasso-cattleya × Empress of Russia, a very fine Lælia-cattleya × elegans, L.-c. × callistoglossa, and others, the remarkable Bulbophyllum barbigerum, B. Lobbii, the rare Ionopsis paniculata, Vanda teres, Masdevallia ignea, and others, Miltonia vexillaria, M. × Bleuana, Phalænopsis × intermedia Portei, Cattleya × Parthenia, fine examples of C. Mossiæ and C. Mendelii, Lycaste Locusta, Cypripedes, the fine Lælia Evelyn (tenebrosa × præstans), &c. A First-class Certificate was given to Odontoglossum crispum Edward Rex, a fine form with light-yellow spotted segments, and an Award of Merit to O. c. British Queen, a very fine white form having a blotched lip.

Messrs. Charlesworth & Co. staged a superb group, which gained a Silver Cup. It was rich and varied, and the plants showed excellent culture, Odontoglossums, showy Cattleyas, Lælias, and Lælio-cattleyas were in great force, and among the subjects specially noted were several

good Lælio-cattleya × G. C. Ball, L.-c. × Major-Gen. Baden Powell, L.-c. × Hippolyta with three fine spikes, two fine L.-c. × Digbyano-Mendelii, good examples of Oncidium Gardneri, some very fine O. Marshallianum, including the beautiful unspotted O. M. sulphureum, Trichopilia crispa, T. suavis alba, the brilliant Renanthera Imshootiana, Houlletia odoratissima and var. xanthina, Disa × Veitchii and D. × langleyensis, Phaius × Norman, Dendrobium atroviolaceum, a fine Masdevallia × Shuttryana Chamberlainii, Cypripedium callosum Sanderæ Cypripedium × leopardinum (Sallieri Hyeanum × Argus), Odontoglossum hastilabium, the rare O. × elegantius, O × Coradinei, some good O. × Adrianæ, O. crispum Gladys, and many other good forms of the species, the remarkable O. Hallii heatonense, and others too numerous to mention. First-class Certificates were given to Oncidium varicosum Charlesworthii, having the lip no less than $2\frac{1}{2}$ inches broad, Lælio-cattleya × Hyeana splendens, and Odontoglossum Pescatorei Charlesworthii, a fine form beautifully spotted with purple, and Awards of Merit to O. crispum Calypso, white, heavily blotched with brown, and Lælia × Helen (tenebrosa × Digbyana), a remarkable plant, which is figured at page 169, under its correct name, Brassolælia × Helen.

Messrs. Hugh Low & Co. staged a very fine group, which gained a Silver-gilt Flora Medal, and which was rich in fine things. We noted Cattleya Skinneri alba and a splendidly flowered example of the typical form, showy forms of C. Mossiæ, C. intermedia Parthenia, Scuticaria Hadwenii, Sobralia macrantha Kienastiana, Brassavola Digbyana, Epidendrum radicans, E. vitellinum, Vanda × Miss Joaquim, Cyrtopodium punctatum, a fine Odontoglossum Hallii, Dendrobium Dearii, D. crystallinum album, Miltonia Roezlii, Maxillaria Sanderiana, Cypripedium Lawrenceanum Hyeanum, C. callosum Sanderæ with six flowers, &c. An Award of Merit was given to Cattleya Mossiæ in memoriam Dr. Smee, a large and richly coloured form.

Messrs. Stanley Ashton & Co. staged another fine group, which secured a Silver-gilt Flora Medal. It included many fine coloured forms of Cattleya Mossiæ, C. M. Reineckeana, C. M. Wageneri, C. Warscewiczii, C. Mendelii, C. Schilleriana, Lælia × Latona, some good Odontoglossum crispum, three plants of O. Edwardii, O. × Adrianæ, O. × elegans, Cypripedium hirsutissimum, a good C. Mastersianum, C. × William Lloyd, C. Victoria-Mariæ with three flowers open on the spike, Brassavola Digbyana, Miltonia × Bleuana, Lælio-cattleya × highburiensis, L.-c. × Massangeana, the pretty Oncidium leucochilum, O pubes, and various other good things. An Award of Merit was given to Cattleya Mossiæ Aurora, a very large rosy lilac form, with a handsome lip.

Mr. J. Cypher also received a Silver-gilt Flora Medal for a fine group,

containing some good Lælia purpurata, L. tenebrosa, L. lobata, Cœlogyne Dayana, Anguloa Ruckeri, Cattleya Skinneri, some fine C. Mossiæ, C. Schilleriana, Dendrobium nobile nobilius, the striking violet-blue D. Victoria-Regina, some good Odontoglossums, including O × elegans, Oncidiums concolor and Marshallianum, some good Maxillaria vexillaria, Cypripedium × Goweri magnificum, C. × Ashburtoniæ giganteum, and various others, the whole being very effectively arranged.

Messrs. B. S. Williams & Son received a Silver-gilt Banksian Medal for a fine group, containing fine examples of Cattleya Mossiæ and Mendelii, C. Skinneri, Platyclinis latifolia, Lælia cinnabarina, Miltonia vexillaria, Cymbidium Lowianum, Aërides virens, Oncidium sarcodes, and various others.

Messrs. Cowan & Co., staged another large and varied group, which gained a Silver Flora Medal. It contained many fine Odontoglossum crispum, O. × Adrianæ, O. triumphans latisepalum, O × spectabile, Masdevallia Veitchiana, M. Estradæ, M. × Cassiope, M. × Rushtoni, the rare Brassia Keiliana, some good Oncidium Gardneri, Cypripedium Lawrenceanum Hyeanum, C. niveum, C. × Charles Richman, and many other good things.

M. Ch. Vuylsteke, Ghent, staged a really remarkable group of Odontoglossums, for the most part home-raised seedlings, and to which a Silver Flora Medal was deservedly awarded. It contained the fine O. × loochristiense præstans, superb forms of O. × spectabile and O. × Rolfeæ, three fine forms of O. × Denisonæ, O. × bellatulum, good forms of O. crispum and O. Pescatorei, with some others. A First-class Certificate was given to O. × ardentissimum, with heavy dark claret markings, and Awards of Merit to O. × concinnum, white prettily blotched with purple, O. × dulce, another purple-spotted form, and O. × venificum, charmingly suffused and blotched with light purple. The parentage of these four, hybrids was not recorded, but they seemed to combine the characters of O. Pescatorei and heavily spotted forms of O. crispum.

Messrs. Linden, Moortebeeke, also received a Silver Flora Medal for a fine group, in which forms of Odontoglossum crispum and O. × Adrianæ were conspicuous, together with O × mulus chromaticum, pale yellow with many small spots, and the characteristic luteopurpureum lip, a fine O. Hunnewellianum, some good Lælio-cattleyas, &c.

Mr. Ed. Kromer, Croydon, received an Award of Merit for the remarkable Cattleya intermedia Aquinii, figured at page 73 of our eighth volume.

M. A. A. Peeters, Brussels, sent a fine Odontoglossum crispum virginale, and four finely spotted forms, of which O. c. Glory of Brussels received an Award of Merit.

Mr. J. Robson, Altrincham, staged a small group, in which Cymbidium

Lowianum concolor with five spikes was conspicuous, together with Lælia purpurata, Odontoglossum × Adrianæ, O. crispum, Cattleyas, Miltonias, Cypripediums, &c.

M. Fl. Claes, Etterbeek, Brussels, sent a choice little group of Odontoglossums, consisting mostly of imported O. × Adrianæ and spotted forms of O. crispum, of which one called O. c. etterbeekensis, was remarkable for its light yellow segments prettily spotted with brown.

Messrs. Janssens & Putys, Antwerp, showed a pretty little group, containing Cattleya Mendelii, C. intermedia Parthenia, Odontoglossum × excellens, O × Adrianæ, some good O. crispum, Cypripediums, &c.

Lastly may be mentioned a few good hardy Cypripediums noticed in the collections of hardy plants exhibited by Messrs. R. Wallace & Co., Colchester; Messrs. T. S. Ware, Feltham, and others. In the first-named we noticed C. acaule, C. Calceolus, C. pubescens, C. montanum, C. candidum, and C. Reginæ, forming quite a charming little group.

LYCASTE CRINITA.

LINDLEY, in 1851, wrote:—"The yellow-flowered Lycastes related to cruenta approach each other so nearly that without knowing exactly on what their differences depend, the one may easily be confounded with the other" (*Paxt. Fl. Gard.*, i. p. 126). There were only six of them then, and the subsequent appearance of several others has not diminished the difficulty, especially as some of them are rarely met with in cultivation. Lycaste crinita is a very interesting member of this group, which was introduced from Mexico by Messrs. Loddiges, and described by Lindley in 1844 (*Bot. Reg.*, xxx., Misc., p. 39), but subsequently lost sight of. It has now re-appeared, but unfortunately has been re-baptised as L. Micheliana (Cogn. in Rev. Hort., 1900, p. 264), from specimens which flowered in the collection of M. Mark Micheli, of Geneva, and M. Ed. André. The plant was collected by M. Langlassé, in the Sierra Madre, Mexico, where it grows between the altitudes of 1,700 and 2,000 metres. It is compared with L. aromatica, Lindl., but differs greatly in the shape of the lip and crest, and the much broader hairy petals. The sepals are broad and greenish yellow; the petals ovate, deeper yellow, and very villous at the base; and the lip trilobed, with the front lobe oblong and villous, the side lobes somewhat incurved and obtuse, and the crest linear-oblong, with a dense mass of hairs diverging at right angles on either side. There are a few light brown dots on the crest. It is figured in the *Dictionnaire Iconographique des Orchidées*, and an authentic plant from M. Micheli has now flowered at Kew.

R. A. ROLFE.

PAPHIOPEDILUM CALLOSUM WITH TWIN-FLOWERED SCAPE.

THE occurrence of twin-flowered scapes among species normally single-flowered aroused considerable interest some time ago, and it seems to be agreed that the phenomenon is due to superabundant vigour through good cultivation. It has now been observed in quite a number of species and

FIG. 20. PAPHIOPEDILUM CALLOSUM, TWIN-FLOWERED.

hybrids of the genus Paphiopedilum. The annexed illustration shows a plant of P. callosum in this condition, and is reproduced from a photograph sent some time ago by W. W. Lunt, Esq., of Boston, Mass., U.S.A., and it is interesting to note that no less than six others were producing twin-

flowered scapes in one small collection at the same time, the complete list being, P. barbatum, P. callosum, P. insigne, P. Spicerianum, P. venustum, P. × Lathamianum, and P. × vexillarium. It is quite evident that the plants were strong and well grown. Still more remarkable is it when we find the development of three perfect flowers on the same scape, which we have seen on three different occasions. First in the case of P. Spicerianum, then P. × Rossianum (P. barbatum × tonsum), in the collection of H. J. Ross, Esq., of Florence, in 1899, and, lastly, P. × Cymatodes (a hybrid from P. Curtisii and P. superbiens). The latter occurred in the collection of S. G. Lutwyche, Esq., of Beckenham, and was illustrated at page 184 of our eighth volume. The parents of these two hybrids, as well as P. Spicerianum, are all normally single-flowered, and these truly racemose scapes must be the result of exceptional vigour in the plants.

LEPTOLÆLIA.—Speaking of the new hybrid Leptolælia × Veitchii, the writer of the *Gardeners' Chronicle* report remarks (p. 280):—"Leptotes bicolor being now referred to Tetramicra, probably Tetralælia would be the better name." But he has overlooked the fact that in the List of Garden Orchids it was pointed out that Leptotes and Tetramicra are quite distinct, both in habit and structure (Rolfe in *Gard. Chron.*, 1889, vi., p. 323), so that, fortunately, there is no need to amend the name in the way suggested. Tetramicra is not yet known in cultivation.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on May 6th, when there was a very fine display of Orchids.

H. T. Pitt, Esq. (gr. Mr. Thurgood), staged a magnificent group of Orchids, principally Odontoglossums, and was deservedly awarded a Gold Medal. O. crispum Pittiæ, a handsome heavily blotched form, received a First-class Certificate, and Awards of Merit were given to O. c. Fairy Footsteps, O. Hallii Queen Alexandra, and O. hystrix secundum nulli. Other well-known varieties were O. c. Bonnyanum, and O. c. Annie, together with forms of O. triumphans, O. luteopurpureum, O. × Adrianæ, and other hybrids; also Miltonia Roezlii, M. vexillaria, Vanda teres, Chondrorhyncha Chestertoni, Brassia longissima, Phalænopsis amabilis, Cypripedium Mastersianum, C. Lawrenceanum Hyeanum, Dendrobium × rhodopterygium, with some Cattleyas, Lælias, and other plants.

Sir F. Wigan, Bart. (gr. Mr. Young) exhibited a fine group containing Cymbidium × eburneo-Lowianum, with six spikes, C. Devonianum, C. × I'Ansoni, Miltonia × Bleuana, M. vexillaria and its varieties, Aërides Fieldingii, A. crispum Warneri, Masdevallia Roezlii, M. peristeria, M. caudata xanthocorys, Lælio-cattleya × Hebe, L.-c. × Eclipse, Odontoglossums, and others. A Silver Flora Medal was given, and an Award of Merit to Odontoglossum citrosmum punctatum.

Baron Sir H. Schröder (gr. Mr. Ballantine) was awarded a Silver Banksian Medal for a good group of Odontoglossums, containing O. × excellens, O. × Wilckeanum giganteum, O. × Andersonianum, and good forms of O. triumphans. Awards of Merit were given to O. triumphans latisepalum, and O. × Harryano-crispum Duchess of York.

Sir Trevor Lawrence, Bart. (gr. Mr. White) exhibited Odontoglossum × A. de Lairesse, Lælia × Pacavia (purpurata × tenebrosa), and others. The remarkable Maxillaria fractiflexa received a Botanical Certificate, while to Dendrobium × Ethel (moniliforme × Rolfeæ) an Award of Merit was given.

F. Wellesley, Esq. (gr. Mr. Gilbert) received an Award of Merit for Cattleya Mossiæ Arnoldiana Westfield variety, which we should refer to C. M. Reineckiana.

H. L. Bischoffsheim, Esq., The Warren House, Stanmore (gr. Mr. Gleeson), showed a good form of Cattleya Mossiæ.

J. Colman, Esq. (gr. Mr. Bound) exhibited Cattleya × Louryana.

N. C. Cookson, Esq. (gr. Mr. Chapman) sent a fine spike of Cattleya × Jupiter (Warscewiczii × Lawrenceana).

The Hon. Walter Rothschild, Tring (gr. Mr. Hill), showed a good Lælia × cinnabrosa.

J. E. Vanner, Esq., Camden Wood, Chislehurst (gr. Mr. Robbins), exhibited Lælio-cattleya × Major-Gen. Baden-Powell (L. tenebrosa × C. Lawrenceana).

Messrs. J. Veitch & Sons, Chelsea, received a Silver Flora Medal for a fine group, largely consisting of Lælia and Lælio-cattleya hybrids, together with Masdevallia × Ajax, M. × splendida, Cypripedium × Vipani, Phaius × Norman, and some good Cattleyas. An Award of Merit was given to Disa × Luna (D. racemosa ♀ D. × Veitchii ♂).

Messrs. H. Low & Co., Bush Hill Park, were awarded a Silver Banksian Medal for a good group, containing a fine Cattleya Skinneri, Cymbidium Lowianum concolor, forms of Cattleya Schrœderæ, Odontoglossums, &c.

Messrs. B. S. Williams & Sons, Holloway, received a Silver Banksian Medal for a group containing Vanda tricolor, Calanthe × bella, Trichopilia crispa, some good Odontoglossums, Cattleyas, Dendrobiums, &c.

Herr Otto Beyrodt, Manenfelde, Berlin, sent two fine Odontoglossums.

At the meeting held on May 20th there was again a brilliant display of Orchids, and five medals were awarded.

Sir Trevor Lawrence staged a superb group, about 30 feet long, and gained the coveted award of a Gold Medal. It included many finely-grown plants of Odontoglossum crispum, and several hybrids, some of them bearing two and four fine spikes of flowers. Masdevallias were brilliant, the plants bearing up to twenty flowers each. The group also included some excellent Cypripedes, Dendrobiums, Cattleyas, Lælias, and Epidendrums, Epicattleya × radiato-Bowringiana, Brassia brachiata, Phalænopsis amabilis, Aërides affine with four spikes, a good A. Houlletianum, Thunia × Veitchiana, and others too numerous to mention. Cypripedium, Lawrenceanum hackbridgense, a very richly coloured form, received an Award of Merit, and Epidendrum Schomburgkii a Botanical Certificate.

H. T. Pitt, Esq., received a Silver-gilt Flora Medal for a very fine group, in which Odontoglossum crispum forms were well represented, together with O. Pescatorei, the chaste O. citrosmum album (figured at page 81), Cattleyas, Dendrobiums, Miltonias, the remarkable Chondrorhyncha Chestertoni, Batemannia Wallisii, a well-bloomed Bulbophyllum Lobbii, Anguloa Clowesii, &c. Awards of Merit were given to Odontoglossum crispum Lady of the Lake, a finely spotted form, and Cypripedium Lawrenceanum hackbridgense.

N. C. Cookson, Esq., received a Silver Flora Medal for a fine group, in which Odontoglossums and hybrid Phaius were conspicuous, together with a few good Cypripedes, Cattleya × Harold, Odontoglossum × dicranophorum, O. × Andersonianum Cooksoni, O. crispum Lehmanni, &c. Awards of Merit were given to Phaius × Ruby (Cooksonæ × Humblotii), P. × Phœbe superbus (Sanderianus × Humblotii), and Odontoglossum × Adrianæ Cooksoni, a fine evenly spotted form.

The Hon. Walter Rothschild received a Silver Flora Medal for a remarkable group of Masdevallias, including showy and botanical species, and hybrids, together with Pleurothallis Grobyi, P. macroblepharis, the remarkable P. ornata, and the fine Lælio-cattleya × Hyeana. The Masdevallias included M. striatella, the remarkable M. muscosa, M. × Fraseri-ludibunda, M. Schlimii, and some two dozen others.

Captain Holford, Tetbury, received a First-class Certificate for Odontoglossum × Adrianæ Sibyl, a very fine form, with the spots larger and fewer than usual.

R. Ashworth, Esq., received an Award of Merit for Odontoglossum crispum Marjorie, a remarkable form with concave petals, spotted near the margin.

G. W. Bird, Esq., West Wickham (gr. Mr. Reddan), showed some good Odontoglossum crispum, &c.

Mrs. Blackwell, Minchinhampton (gr. Mr. Wilkinson), showed some good Lælia purpurata, and forms of Cypripedium × Mansellii.

W. P. Burkinshaw, Esq., sent the charming Cattleya Mendelii leucoglossa.

De B. Crawshay, Esq., sent the handsomely blotched Odontoglossum crispum Crawshayanum, and O.c. Raymond Crawshay.

D. O. Drewett, Esq., sent a flower of a hybrid Cypripedium, probably derived from C. Parishii and C. Lowii.

D. M. Grimsdale, Esq., sent some good Cattleya Schilleriana and Odontoglossum crispum, with O. citrosmum, O. cordatum, and a large O. Pescatorei.

R. I. Measures, Esq., sent a few fine forms of Cattleya Schrœderæ and Lælia purpurata.

F. Wellesley, Esq., sent a very fine form of Lælia × cinnabrosa.

Messrs. James Veitch & Sons, received a Silver Flora Medal for a very fine group, in which hybrid Lælio-cattleyas were well represented, together with a number of good Lælia × Latona, Disa × Luna, ten forms of the pretty Epidendrum × elegantulum, Cypripedium × Menas (Chamberlainianum × Lathamianum), a shining yellow bronze-tinted flower, with other good Cypripedes, Cattleyas and Lælias.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A MEETING of this Society was held at the Coal Exchange, Manchester, on April 17th, when there was a very fine display of Orchids, and the following awards were made :—

R. Ashworth, Esq., received a Silver Medal for a good group, including, among others, Odontoglossum crispum Ami Charles (F.C.), O. c. Dora (A.M.), O. c. Pearl (A.M.), Cattleya Schrœderæ alba (F.C.), C. S. Mrs. Henry Ratcliffe (A.M.), C. Mossiæ Emperor (A.M.), Dendrobium nobile Ballianum (F.C.), D × Apollo albens (F.C.), D × Cybele Evansianum (A.M.).

A. Warburton, Esq., exhibited Cypripedium callosum Sanderæ (F.C.), Odontoglossum × Adrianæ Mrs. R. Walker (F.C.), and Odontoglossum × Andersonianum (A.M.).

M. Wells, Esq., Sale (gr. Mr. Lamb), received a Silver-gilt Medal for a fine group, and Awards of Merit for Cattleya Schrœderæ, Odontoglossum triumphans, O. t. latisepalum, O. crispum Mrs. Wells, and Cypripedium × Colossus.

S. Gratrix, Esq., received an Award of Merit for Cypripedium × Dowlingianum.

R. Briggs-Bury, Esq., Accrington (gr. Mr. Wilkinson), received an Award of Merit for Odontoglossum × Adrianæ Tsaritza.

T. Baxter, Esq., received a Bronze Medal for a group of good Odontoglossums.

Mr. W. Holmes received First-class Certificates for Lycaste Skinneri Hardyana, and Odontoglossum crispum Bella.

Mr. J. Cypher, staged a good group, including cut blooms of the chaste Vanda teres alba. Dendrobium × Nestor, received a First-class Certificate.

The annual meeting was held on May 1st, when the report showed that the Society is in a flourishing condition, with a substantial balance at the bank. S. Gratrix, Esq., was elected Chairman for the coming year, and Mr. J. Cypher Vice-Chairman. The Committee had made 319 awards of various kinds during the year, the winners of points being O. O. Wrigley, Esq., 1st, Gold Medal; S. Gratrix, Esq., 2nd, Silver-gilt Medal; and Mr. A. J. Keeling, 3rd, Silver Medal. There was a very fine show of Orchids, consisting of eleven groups, with some smaller displays, and the hall was crowded with plants.

J. Leemann, Esq., received a Silver-gilt Medal for a fine group, and Awards of Merit for Brassocattleya × nivalis, Odontoglossum × Adrianæ Sappho, O. crispum Mars, O. c. Rosette, O. c. Emilia, O. c. Volodyovski, and Cattleya × Grand Duchess Elizabeth (Lawrenceana × Mossiæ).

R. Ashworth, Esq., also received a Silver-gilt Medal for a fine group, and Awards of Merit for Odontoglossum crispum heliotropium, O. c. Dorothy, O. c. Polycletus, and O. Pescatorei Kitty.

M. Wells, Esq., received a Silver-gilt Medal for a fine group, and First-class Certificates for Cattleya Lawrenceana and Lælio-cattleya × Haroldiana, the latter a hybrid between L. tenebrosa and C. Dowiana aurea, and thus a form of the hybrid figured at page 152.

R. Tunstill, Esq., received a Silver-gilt Medal for a choice group, also First-class Certificates for Cypripedium Lawrenceanum Hyeanum and C. callosum Sanderæ, and an Award of Merit for Cypripedium × Edithæ (Chamberlainianum × bellatulum).

E. Rogerson, Esq., Didsbury (gr. Mr. Towe), received a Bronze Meda for a small group, including Cypripedium Sanderianum (F.C.), and a plant of Oncidium Marshallianum bearing over 200 flowers (Cultural Certificate).

S. Gratrix, Esq., exhibited Cypripedium × Emperor of India (F.C.), and Odontoglossum crispum guttatum (A.M.).

E. O. Schneider, Esq., Whalley Range (gr. Mr. Hunt), exhibited Dendrobium thyrsiflorum with 15 racemes.

T. Baxter, Esq., staged a few good Odontoglossums.

Mr. J. Cypher staged a fine group, and was awarded a Silver-gilt Medal, also a First-class Certificate for Dendrobium × Cybele giganteum,

and an Award of Merit for Lælio-cattleya × Major-Gen. Baden-Powell.

Messrs. Stanley, Ashton & Co. received a Bronze Medal for a small group, and an Award of Merit for Cattleya × Miss Harris var. Stanleyi.

Mr. J. Robson, Altrincham, received a Bronze Medal for a small group, in which two nice plants of Cymbidium Lowianum concolor were conspicuous.

Messrs. Hugh Low & Co. sent Cattleya intermedia alba and a few other things.

Mr. A. J. Keeling sent a good Odontoglossum × elegans.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL.

THE usual Whitsuntide Show was held at the Society's Gardens, Old Trafford, from May 17th to 22nd, when there was a fine display of Orchids.

For the best group (amateurs), E. Ashworth, Esq., Wilmslow (gr. Mr. Holbrook), was first with a very fine group, including two fine pans of Dendrobium Victoria-Regina, and Cypripedium × Mrs. A. W. Sutton (Chamberlainianum × niveum), carrying a fine branching spike (F.C.), besides the usual instalment of well-known things. W. Duckworth, Esq., Flixton, was second, and W. E. Watson, Esq., Stretford, third.

In the corresponding class for Nurserymen, Mr. J. Cypher, Cheltenham, was first, with a splendid group, in which Odontoglossums, Oncidiums, and Lælias were particularly good. Mr. J. Robson, Altrincham, was second.

The prizes for the best ten Cattleyas and Lælias, and for ten specimen Orchids, also went to Mr. Cypher.

For the best ten Odontoglossums, Mr. J. Robson was, curiously enough, the only exhibitor, and was awarded the second prize.

Messrs. Charlesworth & Co., staged a splendid group of Orchids, and were awarded a Gold Medal, also First-class Certificates for Odontoglossum crispum Gladys, a heavily blotched form, and O. Pescatorei Charlesworthii, a beautiful white form blotched with violet, which was greatly admired. Awards of Merit were given to O. Hallii heatonense, Lælio-cattleya × highburiensis nobilior, L.-c. × G. S. Ball, and L.-c. × Major-Gen. Baden-Powell.

Messrs. John Cowan & Co. also gained a Gold Medal for a fine group, in which a plant of Cœlogyne pandurata was conspicuous. An Award of Merit went to Odontoglossum crispum King of Spain.

Messrs. Hugh Low & Co. included some fine Orchids in a group of plants which also gained a Gold Medal.

Messrs. Sander & Sons also staged a small group, consisting largely of good Odontoglossums.

CYMBIDIUM RHODOCHILUM.

OVER a year ago a few plants of this remarkable species were brought from Madagascar by M. G. Warpur, and now one of them is flowering very finely in the Orchid House at Kew. It was noted by M. Warper as follows :—

"Cymbidium rhodochilum (Rolfe) is a scarlet-lipped species which always grows on masses of Platycerium, on the branches of high trees (chiefly of Albizzia fastigiata), near the rivers and on the higher slopes of the forest, at an elevation of 1,800 to 2,100 feet. It flowers in October, November, and December, and seems to prefer a moderate degreee of humidity and much light. The rest of the flower is green" (*Orch. Rev.*, ix, p. 10).

It proves to be a very handsome thing. The pseudobulbs are tufted, three to five inches long, and bear about ten gracefully arching leaves, and a scape about two feet long, with twenty flowers and buds. The sepals are light green, reflexed, and two inches long. The petals are suberect, thickly spotted with dark olive green on a light green ground, and about as long as the petals. The lip is three-lobed, with the side lobes resembling the petals in colour, except that the blotches are larger, and the large obcordate front lobe is crimson, and over 1½ inches broad at its greatest expanse, with a yellow band down the disc spotted with olive green. It is strange that so striking a plant should not have been introduced before. It appears to have a good constitution, and is likely to prove a great horticultural acquisition. There are two other Madagascar species, C. flabellatum, Lindl., and C. Humblotii, Rolfe, the former of which is not yet known in cultivation. The latter was described in 1892 (*Gard. Chron.*, 1892, xii, p. 8), when it flowered in the collection of C. Ingram, Esq., of Godalming. Mr. Warpur also met with this plant, and tells me that it always grows on the stem of the palm called Raphia madagascariensis.

R. A. ROLFE.

USE OR ORNAMENT.—What can be the function of the remarkably attenuated drooping petals of Paphiopedilum Sanderianum and Phragmipedilum caudatum? We are generally taught that all such modifications of structure have their use, if only we were able to discover what it is. The two plants grow in countries far apart, yet the form of the petals is so similar as to suggest that they have some common function. They elongate with great rapidity after the flower opens, and one is inclined to wonder whether they serve as ladders by which some insect climbs up to the flower and fertilizes it. Observation of the plants in their native homes might provide a clue.

CALENDAR OF OPERATIONS FOR JUNE.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

FOR temperatures and management of the various departments see last month's Calendar.

The cold spell of weather experienced during last month was not at all favourable to the growth of Orchids; more fire heat was needed in order to keep the temperatures correct than is usual at this time of year, the regulation of which required careful handling. Every encouragement should be given to the plants in each department, by attention to important details, such as watering and damping down, both of which are essential to their welfare. Although there is always something in need of attention in the way of repotting, &c., the bulk of this work will have been attended to. These plants should be given the best possible conditions in their growing quarters, and where this operation has been carried out successfully they will soon begin to show the benefits derived therefrom. Plants that are growing and rooting freely will require water more copiously than heretofore, the exception being with plants that are in leaf soil, as a less quantity will suffice in this case.

THUNIAS.—Plants of Thunia Bensoniæ, T. Marshalliana, T. × Veitchii, and T. alba, which were potted as advised, will be about to expand their flowers and should have every encouragement; their pots will be now filled with roots and must not be allowed to become dry. Light applications—two or three times a week—of liquid cow manure will greatly assist their development at the present time. After flowering, the plants should be removed to a house where plenty of sunshine and free ventilation can be given to mature the growths, keeping a sharp look-out for red spider and thrips, as these pests are very partial to their tender foliage, but can be kept in check by occasionally sponging the leaves with XL-All Insecticide.

CALANTHES.—These plants are making rapid headway, and may have water applied more freely, taking care not to do this where the plants are not rooting freely, because excess at this period invariably ends in the foliage and bulbs becoming subject to that disease called Spot, whereas a little extra care would give the cultivator good, strong, clean, healthy growth, which is always more desirable than seeing them in the former case.

CATTLEYA WARSCEWICZII (GIGAS).—This is a most desirable species to have, and is certainly one of the most useful late summer flowering Cattleyas when it thrives, and flowers annually. When grown suspended near the roof glass, or in a position where plenty of strong light is afforded, little difficulty is experienced to induce them to flower. Their growths will now be in an advanced stage and will soon be showing their sheaths, and when

these are apparent water may be applied more freely. Secure the growths by carefully tying the same to the suspending wires of the receptacles. Very often this Cattleya has a tendency to make secondary growth; especially is this the case with those that commence to grow early in the year, and to obviate this, a good plan is, as soon as the flowering is past, to remove them to a dryer position, where more ventilation can be given. Shade from the sun's rays during the hottest part of the day, and give water sufficient only to prevent the pseudobulbs from unduly shrivelling. Should second growths make their appearance, the plants should be given every assistance, in order to mature the same before the late autumn, because this is necessary in order to maintain the plant in a satisfactory condition, and favourable to their flowering another year. C. Dowiana aurea is another species which needs similar conditions, and is a lovely Cattleya when grown successfully. These plants grow well at Highbury, suspended in a corridor. They require a good season of rest, and very little root moisture should be given during this stage. The plants are now commencing to grow freely, and must have water carefully applied until the leaf commences to expand, and the sheath is observed within. Give plenty of warmth and moisture, in order to ripen the growth quickly, and when out of flower remove them so that cooler treatment may be afforded.

MILTONIA VEXILLARIA will be making a good show at this period, and as they pass out of flower they should be given fairly dry conditions, with a limited supply of water at the roots, for a few weeks. At this stage the least excess will often cause decay about the base of the pseudobulbs, which makes them appear unsightly, and very often ends in the loss of the plant altogether. Frequent dampings between the pots will sustain their vigour until the new growths are well away from the base, when more water may be given to the roots without fear of injury.

DENDROBIUMS of the thrysiflorum and densiflorum section will now be starting into growth freely. A position should be given them in the warmest house until this is completed, when they should be removed to cooler quarters, gradually hardening them so as to withstand the cool-house temperature for the winter. When so grown and treated in this way, these species give desirable results, which are not obtainable when the plants are compelled to rest in heat and moisture.

ODONTOGLOSSUM HARRYANUM may now be repotted, for roots will be forming at the base of the new growths. The plants seem to grow best here in the Intermediate house; in a compost consisting of equal parts of fibrous loam and turfy peat, with an addition of chopped sphagnum moss, using the bracken rhizome for drainage. Press the compost moderately firm, and afford the plants moisture at the roots liberally at all seasons, for shrivelling of the pseudobulbs will soon occur if they

are allowed to become dry. This is more apparent when in flower, and the bulbs will often shrink after the flowers are removed, but with a little attention the normal condition may soon be regained.

MASDEVALLIAS are giving a grand display, and these will require to be shaded from bright sunlight, and the house in which they are grown kept as cool as possible during the summer months. The plants should be examined carefully for insect pests, or else disfigurement of their foliage will soon occur if neglected, and nothing looks more unsightly.

Such plants as Cattleyas Mossiæ and Mendelii, Lælia purpurata, Sobralias, and others now in bloom may have attention as soon as flowering is past, giving them a fresh compost whenever this is desirable, or otherwise renovating them as needs require.

Plenty will be found to do, in the way of cleaning, and nothing tends to improve the look of the plants generally, than does the clean, tidy appearance of foliage, pots, and stages. Give attention to any plants that require a new stick, so that any fresh growths may be firmly secured. Less risk is incurred if attention be given at the right time to this necessary detail.

THE R.H.S. JOURNAL.

THE April issue of the *Journal of the Royal Horticultural Society* contains two papers of great interest to Orchidists. The first is entitled "Mendel's 'Law' applied to Orchid Hybrids," by Capt. C. C. Hurst, F.L.S., F.R.H.S. After a short statement of Mendel's formula and theory, we have a note on "the advantages of Orchid Hybrids for Observations in Heredity," as follows :—

1. The natural order Orchideæ contains a large number of genera and species with a wide range of variation.

2. Many of the species have attained to a high degree of specialization among flowering plants.

3. Orchid hybrids, between distinct species, and even genera, are now very numerous in gardens, and, as a rule, are very fertile as compared with some plant hybrids.

4. Orchid hybrids being valuable commercially, their pedigrees are, as a rule, carefully kept ; and the literature devoted to them is very extensive, containing not only written records, but also valuable reproductions of paintings, photographs, and drawings, all of which are, and will be, invaluable for future reference.

5. Orchid hybridisation has progressed so rapidly of late that we have already complex hybrids combining in their pedigree no less than five distinct species, and further developments are confidently anticipated in a very short time.

6. True specific characters are more easy to follow in a complex hybrid than varietal, or even racial ones.

7. In isolated Orchid species the pedigree of pure specific characters is known to have been the same for many generations, thus being less liable to reversion than mere racial or varietal characters, whose origin is comparatively recent.

The author then goes on to explain that when two distinct species of Orchids of the same genus are crossed together, the resulting hybrid is, as a whole, fairly intermediate between the two parents. But if, as in Mendel's system, each pair of specific characters be examined separately in a number of plants, it is found that the character of each species is, as a rule, inherited in different degrees by the hybrids. For example, Paphiopedilum insigne has well defined spots on the dorsal sepal, which are absent in P. Spicerianum, while in P. × Leeanum, the hybrid between them, a few forms may be found almost as much spotted as in P. insigne; a few others (even from the same capsule), as spotless as P. Spicerianum; a third moiety will be truly intermediate, showing spots reduced in size and number; while the great majority will vary on either side of the truly intermediate form, right up to the two extremes, making a perfect series. This rule may be extended to other characters and other hybrids.

In order to avoid ambiguity it is proposed to call all forms which deviate 25 per cent. or less from either parent "specific," and they are marked "A" and "a," while the remainder (varying less than 25 per cent from the mean) are called "intermediate," and marked "Aa." In the case of P. × Leeanum, a large number of hybrids were analysed, giving in all 492 characters, 248 of which were "specifics" and 244 "intermediates." And the case is put thus:—"Now, if P. Spicerianum = A, and P. insigne = a, the precise formula in this case works out as 127 A + 244 Aa + 121 a, which, considering the small numbers used, is a close approximation to A + a + Aa + a, which agrees with Mendel's observations in the case of peas.

The result of analysing upwards of 110 hybrids of different genera agrees substantially with the preceding, but the author proposes to show in a subsequent paper that "this formula of Mendel, though useful as a working formula for hybrids of a certain ancestry, has its limitations; and that Mendel's theory in explanation of that formula cannot generally be maintained with Orchid hybrids," or, in other words, that "Mendel's formula is not a general law, but simply a particular formula for a particular group of hybrids and crosses." This second paper will be awaited with interest.

The second paper is a "List of Orchids used in the fertilization of Hybrids which have received either First-class Certificates or Awards of

Merit from the Royal Horticultural Society, to December 31st, 1901," compiled by J. Gurney Fowler, Treasurer. It also serves as an Index to the Society's Collection of Paintings, for after the name we find numbers, in brackets, which indicate the number of paintings, either of the hybrid or its varieties, in the R.H.S. collection, and thus the list has a special value. We may add that it extends to twenty-eight pages, the parents being arranged alphabetically, and thus each hybrid occurring twice.

In a valuable paper on "Plant Diseases," by George Massee, F.L.S., we find a figure of the Orchid leaf-rust (Glœosporium cinctum), though we fail to find a reference to it in the text.

The abstracts, as usual, are valuable, and we find the *Orchid Review* in the list of Journals—but where, oh where, are the abstracts?

ORCHIDS IN SEASON.

THREE very handsome hybrids are sent from the collection of Sir James Miller, Manderston, Duns., N.B., by Mr. Hamilton. Lælio-cattleya × Lady Miller (L. cinnabarina × C. granulosa Schofieldiana) is a rich orange-yellow flower with some darker veining on the lip, but one of the two forms sent has the very undulate front lobe rich crimson. The others are L.-c. × Hyeana and L.-c. × Major-General Baden-Powell, the former a seedling from Lælia purpurata, and the latter from L. tenebrosa, the pollen parent in each case being Cattleya Lawrenceana. Flowers of three handsome Lælia cinnabarina hybrids, namely L. × Latona, L. × cinnabrosa, and Lælio-cattleya × Hippolyta, were afterwards sent.

A fine flower of Lælio-cattleya × Major-Gen. Baden-Powell is also sent from the collection of J. E. Vanner, Esq., Chislehurst, by Mr. Robbins, together with a beautiful light form of Cattleya Mossiæ, and two dark late-flowering forms of Paphiopedilum insigne.

A beautiful flower of Odontoglossum × Rolfeæ is sent from the collection of E. Rogerson, Esq., Oakdene, West Didsbury. The spots of the petals and lips are small, numerous, and more or less confluent. There seems to be the usual amount of variation between the individuals of this hybrid, which represents one of M. Vuylsteke's greatest successes.

A good form of Lælio-cattleya × Schilleriana is sent from the collection of Captain Law-Schofield, Rawtenstall, Manchester, by Mr. Schill. The pollinia are very unequal, but the flower in other respects looks about three-fourths Lælia purpurata, the petals being $1\frac{3}{4}$ inches across, and the front of the lip very richly coloured. The bulbs are noted as about a foot long and the leaves five to six inches.

Flowers of several very beautiful Odontoglossums are sent from the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander.

O. × Adrianæ is represented by the two handsome varieties Countess of Morley and Sybil, the latter from the plant which received a First-class Certificate from the R.H.S. the other day. It is quite exceptional in size, and the ground colour bright yellow, while the dark chocolate markings are partly represented as large irregular blotches. O. Hunnewellianum and O. crispum are also sent, the latter being represented by a dozen fine forms, in which the range of variation between white and rose, and spotted and unspotted forms, is well shown. In O. c. Trianæ the spots are absent from the petals. The others are O. × Andersonianum Ruckerianum, O. cirrhosum Klabochorum, and a good O. Hallii.

Two beautiful inflorescences of O. crispum are sent from the collection of D. M. Grimsdale, Esq., of Uxbridge, together with a very large form of O. Pescatorei, a curious flower of Cattleya Mendelii consisting of two large sepals and petals, and a flower of Paphiopedilum Appletonianum. A very fine flower of Cattleya Skinneri is also sent.

A remarkable form of Lælio-cattleya × Schilleriana is sent from the collection of Dr. C. Eastwick-Field, Midhurst, Sussex. It is very interesting and beautiful.

An extremely fine form of "Cypripedium macrochilum gigantaum" is sent from the collection of T. Statter, Esq., Whitefield, by Mr. Johnson, in which three-flowers are expanded together, and the petals attain a length of twenty-two inches.

A fine form of Lælio-cattleya × Schilleriana is sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno, by Mr. Axtell, together with an inflorescence of Odontoglossum gloriosum, a plant which will always be interesting as one parent of the numerous forms of O. × Andersonianum.

FALSE HYBRIDS.

Does the curious Phaio-Cymbidium × chardwarense, noted at page 117, come under the above heading? Mr. Morris, Mr. Moore's gardener, writes that the seed from Phaius grandifolius × Cymbidium giganteum was sown on a large pot of the latter, but did not appear for twelve months, though after the plant was repotted the seedlings came up from very low down in the pot, and still continue to come. Some have been potted up every year, and there are still about a dozen on the pot. There is said not to be the slightest sign of Cymbidium in the habit of the seedling or the spike, though the lines of C. giganteum are very apparent on the flower. A note in the *Gardeners' Chronicle* (p. 322) speaks of it as resembling Phaius × maculato-grandifolius, the flowers being yellow, with reddish markings on the sepals and petals, and a showy claret purple tint on the lip, and

that Mr. Moore is as confident as can be that the seedlings were obtained in the manner indicated. It also notes that "among other strange crosses is that of *Zygopetalum Mackaii* × *Cymbidium giganteum*, the development of which will be watched with interest." Some hybrid seedlings in the collection raised between Cattleya citrina and Brassavola Digbyana are more likely to show the true intermediate character.

NOTES.

THE next meeting of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, on June 10th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

On June 24th and 25th, the Society will hold a Conference on Roses at Holland House, Kensington, by kind invitation of the Rt. Hon. the Earl of Ilchester. This meeting will take the place of one of the ordinary fortnightly shows, and all classes of plants, &c., may be exhibited. The Orchid Committee will meet at noon of the former day, and plants for Certificate may be entered up to 10.30, but groups must be entered with the Secretary not later than June 17th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on June 5th and 19th. The Committee meets at noon, and exhibits are open to inspection from 1 to 3 p.m.

A recent issue of the *Journal of the Asiatic Society of Bengal* contains descriptions of twelve new Orchids, from the Western Himalaya, by Mr. J. F. Duthie. They were chiefly collected by Mr. P. W. Mackinnon, who has taken a keen interest in the botany of the Missouri district, and has trained some intelligent hillmen to work as collectors. Cirrhopetalum Hookeri is interesting as being epiphytic on Rhododendron arboreum, at 5,000 to 6,000 feet elevation in Tehri-Garhwal, and Cymbidium Mackinnoni as the nearest ally of the Japanese C. virescens, both having a single-flowered scape, in this respect resembling Maxillaria.

VANILLA CULTURE IN BENGAL.—*Indian Gardening* for May 8th (page 326) alludes to the experimental cultivation of the *Vanilla planifolia* in the gardens of the Agri-Horticultural Society of India, and remarks that it may interest readers to know that the Vanilla plants are making most vigorous growth, and have fully established themselves on the stakes. All the older vines are laden with pods of fine size and substance, many of the pods being over nine inches long already, and have another four months yet to grow in.

ORCHID PORTRAITS.

BRASSOLÆLIA × HELEN.—*Le Jardin*, 1902, p. 149, fig. 70.

CATTLEYA × HYBRIDA PICTA.—*Amer. Gard.*, xxiii., pp. 306, 307, fig. 70.

CATTLEYA × TRIANÆ VAR. MEMORIA LINDENI.—*Lindenia*, t. 770.

CYPRIPEDIUM × AURIFERUM.—*Lindenia*, t. 771.

C. × BRUNHILD.—*Gard. Chron.*, 1902, xxxi., p. 350, fig. 118.

C. × EMPEROR OF INDIA.—*Journ. Hort.*, 1902, xliv., p. 423, with fig.

C. × OLENUS.—*Garden*, 1902, lix., p. 355, with fig.

DENDROBIUM WARDIANUM VAR. FASCINATOR.—*Lindenia*, t. 772.

GRAMMATOPHYLLUM SPECIOSUM (at Singapore).—*Garden*, 1902, lix., p. 357, with fig.

LÆLIA ANCEPS AMESIÆ.—*Journ. Hort.*, 1902, xliv., p. 269, with fig.

L. × LATONA.—*Journ. Hort.*, 1902, xliv., p. 379, with fig.

LÆLIO-CATTLEYA × PRINCE LEOPOLD.—*Revue Hort. Belge*, 1902, p. 73, with plate.

L.-C. × QUEEN ALEXANDRA.—*Gard. Chron.*, 1902, xxxi., p. 340, with suppl. fig.

LYCASTE × LUCIANI VAR. SUPERBA.—*Lindenia*, t. 769.

MILTONIA ROEZLII.—*Amer. Gard.*, xxiii., pp. 288, 289, fig. 66.

M. VEXILLARIA.—*Amer. Gard.*, xxiii., pp. 288, 291, fig. 67.

ODONTOGLOSSUM CRISPUM MISS LUCIENNE LINDEN.—*Gard. Chron.*, 1902, xxxi., p. 289, fig. 90.

O. C. ROBERT MCVITTIE.—*Journ. Hort.*, 1902, xliv., p. 445, with fig.

O. HALLII QUEEN ALEXANDRA.—*Gard. Mag.*, 1902, p. 302, with fig.

ZYGOPETALUM SCHRŒDERIANUM.—*Journ. Hort.*, 1902, xliv., p. 402, with fig.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

A. L. J. Odontoglossum luteopurpureum hystrix. The large O. crispum is good, but the other is poor, which may arise from weakness. The O. Hallii is true, and coming out of supposed O. triumphans plants indicated some mixture after being collected, for one species comes from Ecuador and the other from Colombia.

W. P. B. Brassia Lanceana.

C. A. P. The hybrid is probably new. Cypripedium × Smeeanum has been doubtfully recorded as having the same parentage, though we suspect it is really synonymous with C. × vernixium. We will try to clear the point up.

A. C. A. Odontoglossum gloriosum. The name O. mævium is an echo of an old blunder.

J. U. H. Odontoglossum × Andersonianum.

Photographs received, with thanks. I. B., R. G.T., F.K.

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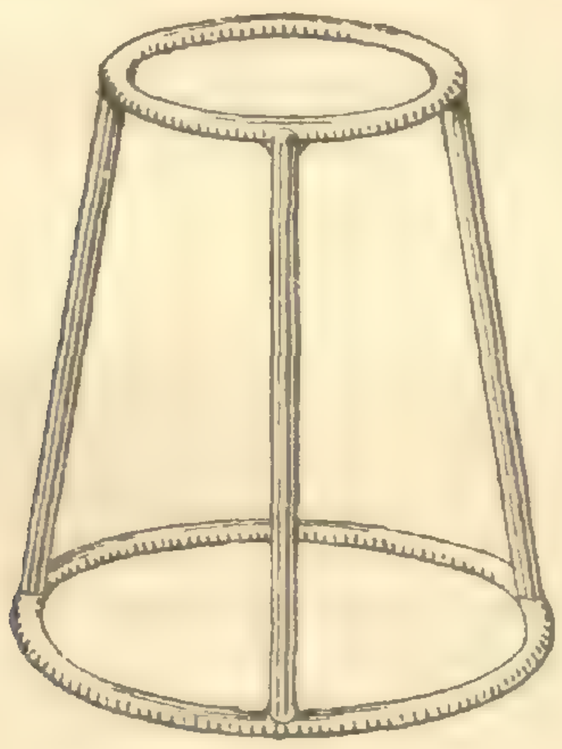

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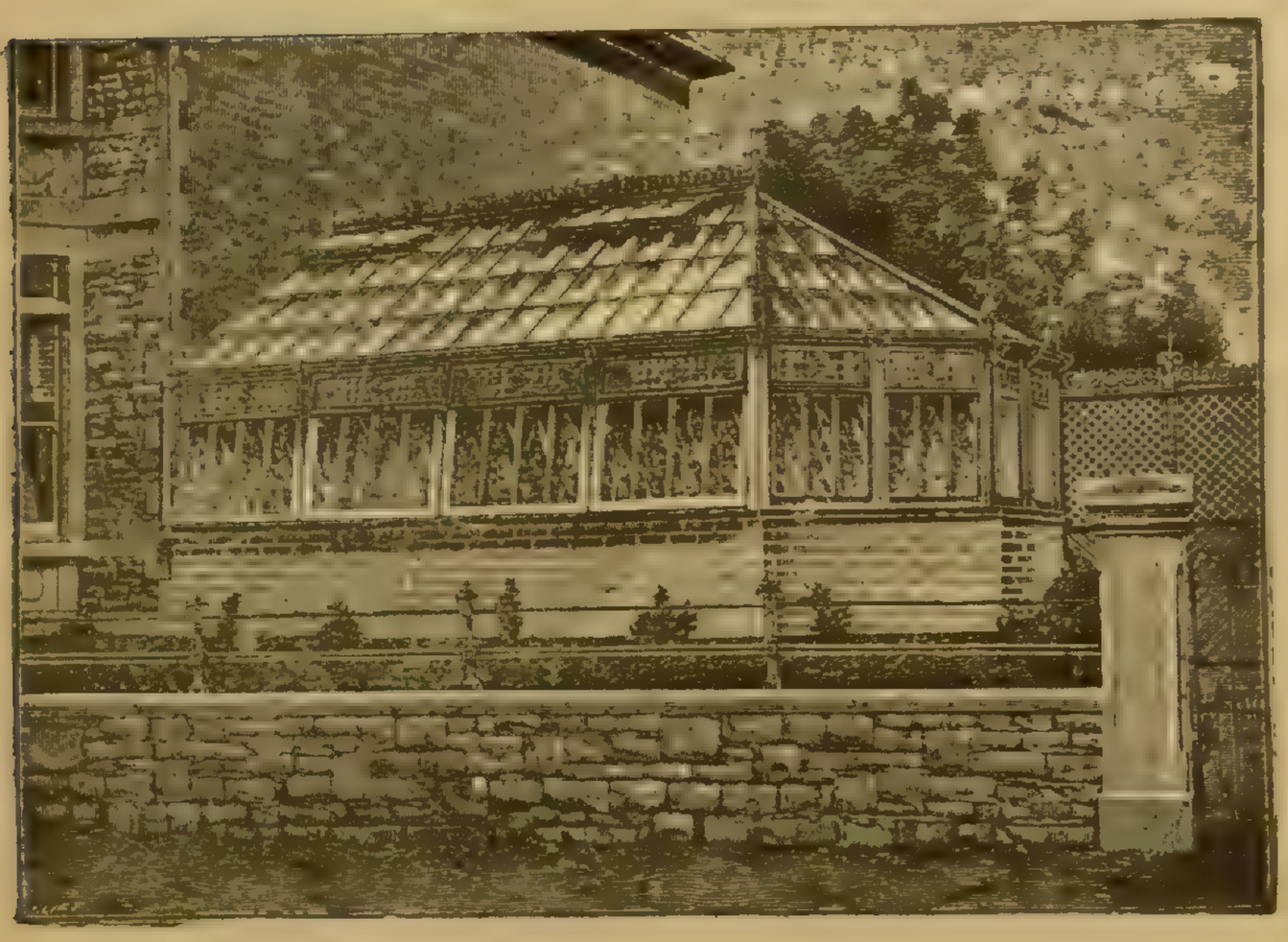

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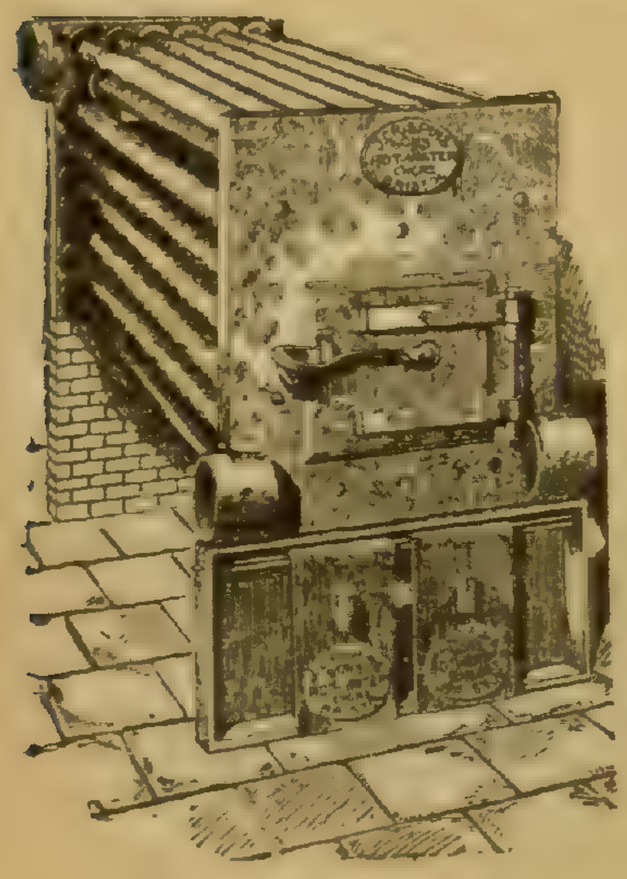

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *JULY*, 1902. [No. 115.

DIES ORCHIDIANI.

THE event of the month has been the flowering of that remarkable novelty, Cymbidium rhodochilum, in the Kew collection. During recent years there has been a dearth of novelties of striking character among imported Orchids, but here we have a marked exception to the rule. The strong contrast afforded by the large red lip against the black-spotted greeen petals, added to its graceful habit and imposing spike, are very striking—the colour indeed almost unique—and should it prove as easily grown as other Cymbidiums it ought to prove a great acquisition. It seems likely to remain rare for some time to come, for besides being reported as rare, it is said to be difficult to import alive; still I am told that there are plants in two or three different collections. I wonder what use the hybridist will be able to make of it.

Mention of the plant recalls what I wrote two years ago (*O.R.*, viii, p. 34) respecting the "scarlet Cymbidium," which had been a sort of legendary plant, but was ultimately identified with our old friend Eulophiella Elisabethæ. At all events M. Humblot is reported to have said that he was nearly certain that it was communicated to Reichenbach, who called it Eulophia Loise-Chauvieri. Now the "scarlet Cymbidium" was said to be Cymbidium Loise-Chauvieri—a plant equally legendary—and the question arose, and still remains, whether the two plants were not one and the same. Judging by the records of the last few years, I think we may term Madagascar the "home of mystery"—at all events so far as things Orchidic are concerned.

Lastly, the name is felicitous, and I say this deliberately, and in spite of the new canon of nomenclature to which I called attention last month. It is significant and descriptive, and therefore eminently appropriate.

What's in a name? The question crops up again in a somewhat different form. Not long ago we had a discussion on what may be termed

the inviolability of the registered names of Certificated Orchids, and I remarked at page 129 that, apart from other considerations, we were likely to be confronted with the difficulty of ascertaining what those names really were. The various reports of the recent Temple Show furnish other examples than the one I called attention to. You state, at page 175, that a First-class certificate was given to M. Ch. Vuylsteke's beautiful Odontoglossum × ardentissimum, but the other reports call it O. crispum ardentissimum, and the question arises which is correct. The plant, I observed, was exhibited under the former name, and one might suspect that the alteration was made by the Orchid Committee, but then a confusion occurs with respect to three other of M. Vuylsteke's Odontoglossums. You say that Awards of Merit were also given to O. × concinnum, O. × dulce, and O. × venificum, and in this some other reports agree, but the *Gardener's Chronicle* reports these also as varieties of O. crispum. In the face of these contradictions, I suppose we must again await the Society's official report, to know what the recognized names really are, as in the case of Cattleya amethystoglossa Sanderæ.

But if the officially recognised names should happen to be botanically incorrect, what then? I make the remark because of the uncertainty as to what these plants really are. Your report says:—"The parentage of these four hybrids was not recorded, but they seemed to combine the characters of O. Pescatorei and heavily spotted forms of O. crispum." This uncertainty is unfortunate, but we know that M. Vuylsteke has been phenomenally successful in raising hybrid Odontoglossums, and I have a shrewd suspicion that these plants were not imported ones. But if raised artificially something ought to be known respecting their origin, and if known it ought to be recorded when the plants are exhibited.

The Manchester Orchid Society has a rule that—"Members are requested to state the parentage of all Hybrid Orchids submitted for adjudication when possible, otherwise they are liable to disqualification." The object is good, but I do not know how far it is acted upon. Indeed the wording of the rule is suggestive of a request for information for the guidance of the Committee rather than anything of a penal character, and the final clause was perhaps only added as a mild way of dealing with refractory exhibitors—if such there should be—who withold information from the Committee which they are known to possess. Of course it is sometimes impossible for the raiser to state the parentage of a hybrid, for seedlings have a way of coming up in the most unexpected places, owing to the seeds getting blown away, displaced by watering, and occasionally, I believe, through being carried about by ants, but such accidents can

generally be rectified if records of the original crosses are carefully kept, as they always should be, and I hope that M. Vuylsteke will not always have to say, as at page 170, "It is not possible to state exactly the parentage," and "I cannot guess its origin." It ought to be possible in the majority of cases, but, whether that applies to the present one or not, I cannot imagine any Orchid Committee disqualifying such a beautiful plant as the one exhibited by M. Vuylsteke as O. × ardentissimum, parentage or no parentage. I hope we shall have this matter cleared up, for the records at present are unsatisfactory in the extreme.

We have further evidence of the progress being made in raising seedling Odontoglossums, in the presence of a beautiful hybrid, called O. × Queen Alexandra, in the collection of J. Rutherford, Esq. And in this case, fortunately, we are not left in doubt about the parentage, for we are told that it was raised from O. Harryanum crossed with O. × excellens. I believe this plant was raised in the collection, and that there are one or two more seedlings from the same capsule which have not yet flowered. Perhaps one of these days we shall find out how to grow seedling Odontoglossums as easily as some other genera, and then we shall see what we shall see.

Speaking of progress in hybridisation reminds me of M. Maron's beautiful hybrid Brassolælia × Helen, which appeared in Messrs. Charlesworth's group at the Temple Show, and which is so well figured at page 169. I noticed that the flower had more colour than the majority of Brassavola Digbyana hybrids, and this might be expected in a seedling from Lælia tenebrosa. The hybrids from B. Digbyana are rapidly becoming an extensive group, and I believe that there are in existence a large number of *unflowered* seedlings.

The discussion respecting the use of leaf-mould seems to have taken a new turn, judging by the notes at p. 165. It is now a question of feeding, or manure, whichever way one cares to put the question, but it is rather curious to find that while the use of mineral fertilisers should be so strongly recommended in America—it seems to have almost become an institution there—yet we find one American grower remarking:—"I have never found any benefit from it." All, however, seem to deprecate the use of leaf-mould as a potting material under the climatic conditions which obtain in America. We scarcely know where we are, but is it after all chiefly a question of food supply, as stated with such confidence?

ARGUS.

VANDA × CONFUSA.

THE reappearance of the rare Vanda cœrulescens var. Boxallii in the Glasnevin Botanic Garden, and a comparison with its allies, confirms an opinion I formed some years ago that Reichenbach's plant of this name is a natural hybrid between V. cœrulescens and V. parviflora, and induces me to publish a note nearly completed at that period. V. cœrulescens var. Boxallii was described over 25 years ago by Reichenbach (*Gard. Chron.*, 1877, vii, p. 749). Among the differences from the typical form pointed out by the author were the white sepals and petals, a shorter conical spur, and the blade of the lip less dilated at the apex. It appeared in the establishment of Messrs. Hugh Low & Co., at Upper Clapton, and almost immediately afterwards was figured in the *Botanical Magazine* (t. 6328). A fine inflorescence from Baron Schröder's collection is preserved at Kew. On comparing this with an inflorescence of the type, sent for determination by Mr. J. W. Moore, of Bradford, I was much struck with the much smaller flowers of the former, and particularly the very short lip—characters which are as strongly marked as those pointed out by Reichenbach—and this led me to compare it with V. parviflora, a widely diffused species, said to be generally distributed in Burma, and thus likely to occur with V. cœrulescens, with which the present one was imported. The result is that, apart from colour, I find the present one almost exactly intermediate. V. parviflora has light yellow sepals and petals, and some dark slate-blue markings on the lip, while V. cœrulescens has pale lilac-blue sepals and petals, the front lobe of the lip dark purple-blue, and the side lobes yellowish, and so far as the sepals and petals are concerned these colours would be expected to neutralise each other, and come out whitish, in a hybrid between the two, which I believe the present plant to be. Some of our hybridists should cross the two together and let us know the result. As we have already a V. Boxallii—perhaps only a variety of V. lamellata—the above name is proposed. It may be added that the characters above pointed out are equally marked in the plant which has now flowered at Glasnevin, which is sent as "received from Burma as V. cœrulescens, but is quite distinct."

There is a V. cœrulescens var. Lowiana described shortly afterwards by Reichenbach (*Gard. Chron.*, 1877, viii, p. 102), as follows:—This is an exceedingly pretty novelty. Give a Vanda cœrulescens Boxallii an amethyst-coloured middle segment of the lip, and a little dot at each end of the sepals, and you have this nicety, dedicated to Mr. Low, who was so lucky to introduce it." It would be interesting to see this if the plant is still in existence, for the question arises whether it may not have a similar origin.

R. A. ROLFE.

CALENDAR OF OPERATIONS FOR JULY.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE welcome change in the weather of the past few weeks has had its beneficial effects to Orchids in general; growth generally has made rapid strides, which clearly shows that there is nothing like sun-heat for certain sections of Orchideæ.

Plenty of moisture will need to be distributed on the paths, stages, &c., in order to keep a nice genial, moist atmosphere, and above all, avoid the use of fire-heat, wherever this can be dispensed with. Give attention to watering, never allowing a plant to remain dry at the root for any length of time. Now that growth is advancing, it should be free and rapid, whilst the natural means for promoting the same are at hand. With the exception of the Cool House, all departments require a good amount of heat, and the plants should be given abundance of moisture, both at the root and overhead.

The repotting season, with but few exceptions, is practically over, and no plant should be disturbed at the root unless this is absolutely necessary, it being preferable to defer repotting operations until September. The principal work, meanwhile, will consist in giving attention to the requirements of the plants with regard to water, &c., and keeping them free from insect pests. On the first sign of thrip or aphis, fumigate with XL. All vaporising insecticide, and for red spider sponge with soapy rain water, mixed rather weak.

Dendrobiums during the last few weeks have made rapid strides, and will continue to do so, provided enough humidity is maintained. This may be done by frequently syringing the plants, and damping the floors, staging, &c. When growth is completed, the plants should be gradually hardened off, by giving them a suitable position, and by all means avoid withholding water from the roots too quickly after growth is made, or harm will be the result. D. chrysanthum has completed growth, and the flower buds are very prominent. After blooming, remove it to a cooler house, where it can enjoy a long dry rest.

The beautiful Cattleya Warscewiczii is making a grand display: when out of bloom, or in cases where bloom is not apparent, and the pseudobulbs are completed, remove to an airy and sunny house, so that the growth can be well matured, and rested, for without this treatment satisfactory results will not be obtained. C. Gaskelliana will also bloom this month. It is a most easily grown and free-blooming species, and wherever necessary it may be repotted after flowering, when renewed root action takes place.

Thunias will have finished blooming and should be removed, as previously advised in last month's Calendar.

Several very beautiful Orchids are just now at their best. Amongst them may be mentioned Oncidium macranthum, which, when in good condition, produces spikes of enormous length, and it is only strong, healthy plants that will stand the strain of such flower-production successfully. It is a cool growing species, and delights in an abundance of water when growing, providing the compost is sweet and in a satisfactory condition. Odontoglossums Schlieperianum and Williamsianum are very similar in growth and bloom, which is now being produced. They grow well when given a position in intermediate temperature with O. grande, though the season of growth differs. The former commences to grow after blooming, and treatment must be given accordingly. Several of the Aërides are also very showy, amongst which may be mentioned A. japonicum, A. expansum Leoniæ, A. virens, and A. affine roseum. They are all very fragrant, and much admired for their graceful habit.

Angræcum articulatum is usually considered a most unsatisfactory Orchid to maintain in good condition for any lengthened period. The flower spike of this beautiful species is being produced, and, when fully expanded, should not under any circumstances be allowed to remain long on the plant, for doubtless this is one of the causes of failure, when such occurs. Leaving spikes on the plant too long, does, in the majority of cases, end in its gradual deterioration. It grows admirably here in the warmest house, and enjoys copious supplies of moisture at the root and overhead, whilst making growth, and is never allowed to remain dry in the winter. Another beautiful species producing spikes is Saccolabium Blumei, and it will give a fine display at a later period. Acineta Barkeri, having passed out of bloom, will be commencing new growth, and any top-dressing necessary may now be done. It succeeds well in baskets, suspended at the warmest end of the Intermediate house. Lælia præstans and Lælia Dayana, should they require it, may be repotted, for growth will now advance rapidly. Suspend them in the Intermediate house, and give copious supplies of water until growth is matured.

Odontoglossum Rossii, having been kept moderately dry since the flowering period, will now be starting into growth, and anything in the nature of top-dressing may be carried out. It does best in small pans or baskets, and should be suspended in the Cool House.

Cypripediums will need watching carefully for any sign of thrip, as disfigurement of foliage will soon occur if neglected; fumigate as soon as this is apparent. The same may be said of the Selenipediums.

Many of the Catasetums, Cycnoches, and Mormodes will bloom towards the latter end of the month, and should have water supplied freely until that period is past. When the flowers are done the plants should commence their ripening process by being suspended in a light, airy

position, and water gradually reduced. Do not expose to full sunlight until properly matured.

Disa grandiflora.—This interesting cool Orchid is always admired where it can be grown with success. Blooming at the present time its flowers are very welcome, when most Orchidaceous plants are over and making new pseudo-bulbs for another season. If kept cool and shaded from the sun, the flowers will last well into August. When fully expanded, they require keeping a little drier, both at the root and in the atmosphere, but whilst in bud a slight spraying over once a day will be very beneficial. A short rest should be given before new growth commences, by placing them outside in some shady nook until required for repotting in September, when I shall have more to say regarding this operation. A sharp look-out for slugs and woodlice is necessary whilst occupying a position outside.

CATASETUM TRIFIDUM ♂ AND ♀.

ANOTHER interesting case of the production of flowers of both sexes of a Catasetum can now be recorded, and, fortunately, it carries our knowledge of the genus a step further. Early in June an inflorescence of three female flowers, with a number of abortive bracts, was sent to Kew for determination by Mr. F. W. Moore, A.L.S., of Glasnevin, with the information that the plant was received from Brazil through M. Binot. The sepals, petals, and lip were heavily spotted with dark brown, in a way not previously observed, and as the species could not be determined it was requested that the plant should be marked and await the production of male flowers. Little over a week later came a fine inflorescence, bearing twenty flowers, which had since expanded on the selfsame plant, and these belonged to Catasetum trifidum, Hook. (*Bot. Mag.* t. 3262). Theoretically, then, the females should have belonged to Lindley's original Monachanthus viridis (*Bot. Reg.*, sub. t. 1538), though on comparison the two were markedly different

I had assumed that Lindley's original Monachanthus viridis and Myanthus cernuus (the latter being identical with Catasetum trifidum) represented the two sexes of the same species. The drawings and specimens had been sent together to Sir William Hooker, from the neighbourhood of Rio de Janeiro, by some person now unknown—who himself had observed that the bulbs and leaves were like those of a different flower—and were described together by Lindley, and I had added:—"The two drawings were evidently made by the same hand and at the same time, for the colours used, as well as the workmanship, are so identical as to leave no doubt on the subject. Looking at the two, there cannot be the slightest doubt that they represent respectively the male and

female flowers of the same species" (*Journ. Linn. Soc.*, xxvii., p. 210). The last sentence proves to have been a too confident assumption, for we now have ocular demonstration of what the second sex is like. It has the general shape of those previously known, but the lip is rather short, measuring six lines high by over ten broad, and is densely spotted inside and out with dark dusky brown, while the sepals and petals are as heavily marked as the lip, the spots moreover being confluent towards the apex of the sepals. The stout column is also speckled all over. It should be added that the males represent a very dark form of the species, the spots being much larger and the green ground colour much more reduced than in *Bot. Mag.*, t. 3262. It would appear that there is also an unspotted form, for in the original drawing of C. umbrosum, Rodr. (*Gen. et Sp. Orch. Nov.* i., p. 129) the lip of the male flower has the same characteristic shape as in C. trifidum, and no other structural differences can be detected, though, as Rodrigues remarks, both kinds of flower have the same green colour.

There now remains the question as to what the original Monachanthus viridis really is. I have again compared the flower and drawing with the others preserved at Kew without identifying it. In size and shape it comes nearest to C. macrocarpum, but the sepals and petals are short, broad and obtuse, not at all acuminate, and the coloured drawing does not agree with *Bot. Reg.*, t. 1752, which is known to be the female of this species. The colouring may be a little crude, but the other drawing (Myanthus cernuus) is sufficiently accurate, both in drawing and colour, and there is no reason to doubt their accuracy in this case, especially as the details of shape are borne out by the dried flower. Have we then a species nearly allied to C. macrocarpum growing near Rio de Janeiro? I do not find evidence of it, though, on the other hand, C. macrocarpum itself extends so far south, for there is at Kew a single male flower collected near there by Miers. It is common in North Brazil, Guiana and Venezuela, extending also to Trinidad. It would be extremely interesting to have the point cleared up, for it seems absurd to have to confess that although collected near Rio, described seventy years ago, and represented by the original dried flower and coloured drawing of the entire plant, yet we remain ignorant of what it really is. And when we remember that the history of this genus forms one of the most romantic chapters in the annals of Orchidology, and that the females of over half the species are still unknown, it seems strange that it should not receive more attention. Fortunately we can report a little progress, and we may hope that collectors and cultivators will not neglect any opportunity of increasing our knowledge of this interesting group of plants.

R. A. Rolfe.

ODONTOGLOSSUM CRISPUM GROWN IN LEAF-MOULD.

THE question of growing Odontoglossums and other Orchids in leaf-mould has been much discussed of late, and now we are able to show the result of the system. The annexed illustration shows a plant of Odontoglossum

FIG. 21. ODONTOGLOSSUM CRISPUM GROWN IN LEAF-MOULD.

crispum grown in leaf-mould, in the collection of Captain Holford, West-on-Birt, Tetbury. Mr. Alexander writes:—"The photograph represents an ordinary white form of O. crispum, but I think it will make an interesting figure to show how Odontoglossums can be grown in leaf-soil.

It was a rather poor plant when potted in Belgian leaf-soil, this being in May, 1901, and you will see the improvement in the bulb made since. It flowered in May, 1902, bearing a branched spike three feet four inches long, with twenty-five flowers. The bulb shows a little sign of shrivelling, but after the spike had been removed a fortnight it became quite plump again, and now looks none the worse for carrying such a spike. I might add that I use a little peat, chopped up and mixed with the leaf-soil, to keep it open and prevent it from becoming sodden. The photograph is by Mr. Lamb, of Tetbury." We think the photograph speaks for itself, and if Odontoglossums can be grown thus in leaf-mould we have little doubt that it will be more largely used in future. We cannot, of course, say how much of Mr. Alexander's success is, in this case, due to the compost used, and how much to the general treatment, and we would suggest that two dozen plants should be selected, as nearly equal in size and vigour as possible, and that half should be potted in the ordinary way and the other half in leaf-mould. They should then be carefully marked, and afterwards grown under precisely similar treatment, and the results noted. And should the difference between the two lots be very marked it would be interesting to have them photographed together.

We have heard of those who, having tried the new system, have expressed their satisfaction with the results, and of those who are not, but we do not know of anyone who has yet tried the two systems side by side, under otherwise identical conditions—water, of course, being applied in accordance with the state of the compost; not indiscriminately. This should certainly be tried, and we cannot suggest any better method of deciding the merits of the two rival systems.

SCUTICARIA DODGSONI.

Does anyone know the above plant? A very pretty Scuticaria has flowered in the collection of C. H. Feiling, Esq., Southgate House, Southgate, which may possibly agree with it. Of the latter, Mr. Feiling's gardener, Mr. Chas. Stocking, remarks:—"The plant is erect growing, with foliage in the style of Oncidium Jonesianum. I have asked several Orchid growers, but none appear to know what it is."

Reichenbach wrote in 1881:—"Scuticaria Dodgsoni, Hort.—I must acknowledge at this place that I am ignorant as to what Scuticaria Dodgsoni is. The name is used in England just as if the plant were an established species. Perhaps it is, but no one of my numerous and well-instructed correspondents could help me. Mr. P. C. M. Veitch looked in vain over some English periodicals which I have not at hand. Mr. B. S. Williams was not very clear in his memory, though he quotes the plant in his *Manual*; it also occurred in the catalogue of Messrs. Rollisson, late of Tooting, and in Mr. Stevens' catalogue. The plant is a myth for me. If some of our readers could give us some information, perhaps even an

indication, it might be very serviceable, provided we were favoured also with the name of the benefactor, as anonymous presents of this kind are apt to be dubious."—*Gard. Chron.*, 1881, xv., p. 9.

In the seventh edition of Williams' *Orchid Grower's Manual*, dated 1885 (I cannot refer to an earlier one), we read:—"S. Dodgsoni, Williams.—A very distinct and handsome species. The leaves are terete, a foot or more in length, and of a dark green colour. The peduncle is short, bearing two flowers; the sepals and petals light brown inside, darker at the base, and blotched with light yellow; the lip white, cup-shaped, beautifully streaked with light rose and yellow—said to have been introduced from Demerara." —p. 572.

So far as the details go, they indicate an affinity with S. Hadwenii, with differences in colour, a feature also very marked in Mr. Feiling's plant, though in the latter the sepals and petals are of a lurid red, with a few whitish markings, chiefly on the petals, and the lip is white, strongly veined throughout with purple-red. The lip is somewhat concave, but more distinctly three-lobed than in S. Hadwenii, the veins hairy, and the crest five-lobed—at least the two lateral teeth are again bifid. Has the missing plant re-appeared, or have we a new species to deal with? This plant is not a "myth," and surely some one can help us to clear the matter up.

R. A. Rolfe.

LAW NOTES.

Hugh Low & Co. v. Appleton.

On Wednesday, May 29th, 1902, before Mr. Justice Lawrance and a special jury, an action was brought by Messrs. Hugh Low & Co., of Enfield, against Mr. W. M. Appleton, of Weston-super-Mare, to recover damages for breach of warranty on the sale of an Orchid. Mr. Horridge, K.C., and Mr. Randolph appeared for the Plaintiffs, and Mr. Holman Gregory for the Defendant.

Mr. Horridge, in opening the case, said that in May last the Plaintiffs purchased from the Defendant for £45 an Orchid warranted to be Cypripedium insigne Harefield Hall variety, but which, when it flowered in November turned out to be a common insigne, and therefore practically worthless. The plant was received by the Plaintiffs in May, and in August it was divided by Mr. Low, and one portion of it flowered in November as a common insigne. The Defendant appeared to have some sort of contention that the plant could not have flowered in the time, also that the variety could not be identified by the foliage. Certain letters had also been produced from an Orchid grower in Yorkshire, a Mr. Keeling, from whom the plant was originally purchased, on which he would

have to ask some questions. With respect to damages, as the plant had been purchased as a young growth, and divided into two, which if true would have been worth about £50 each, £100 was claimed.

Mr. E. V. Low stated that he was a partner in the Plaintiffs' firm, and had been connected with Orchid growing for twenty years. He had dealt with Mr. Appleton for over ten years, and at the end of April, 1901, he visited Mr. Appleton's Orchid houses at Weston-super-Mare, and was shown two plants which were not in flower, for one of which he made an offer. On the 10th May the plant was sent to Paddington by the Defendant, and was brought from there to their establishment by one of their employees. The plant was unpacked, and a wooden label was placed in the pot, marked with a private mark, as was always done with their choice varieties. The plant was then taken by Mr. I'Anson into the house where these particular varieties were grown. The plant then had on it an old flowered growth, a partially matured growth, and a break. The plant remained under Mr. I'Anson's charge until the 19th of August, when he himself divided it. There was then on one portion one old flowered growth, and the one new growth which had matured, and on the other there was one growth and a break just showing. One of the two divisions was taken into the Phalænopsis house for a few weeks, and in November flowered as an ordinary insigne. He wrote to the Defendant on November 25th, and returned the two plants on the 28th. Before returning them he sent them to Mr. H. J. Chapman to confirm his view. There was no peculiarity about the Harefield Hall variety having red spots at the base of the leaves, any more than any other insigne, if grown under certain conditions. He would not expect to find the leaves slightly darker. This variety came out in the autumn of 1897—it came from Northern India—and was as valuable now as then, for there was a bigger demand last autumn, and at a higher price. They had 21 Orchid houses, and this plant was only in two of them the whole time. He examined these valuable plants daily and watched their growth. He did not consider the development of the growth from three to four inches in May to seven to nine inches in November to be an extraordinary one, and he thought the plant flowered in the natural course of events. He had never heard of a mistake occurring in their Orchid houses.

Mr. G. I'Anson said that he was foreman of the East Indian Orchid department, and had been in the employ of the firm for over 25 years. He unpacked the plant when it came, saw it divided by Mr. Low, and would swear that the two plants in Court were the divided plants, and those that were sent to Mr. Appleton in November, but which Mr. Appleton returned. There were about 30 C. insigne in that house, belonging to six or seven varieties, but no common insignes and nothing with which the plants in

question could have been mixed. He would not say that this variety had, as a rule, highly spotted leaves.

Mr. John Cowan, managing director of Messrs. John Cowan & Co., Gateacre, said he had had about 25 years experience of Orchid growing. He knew the variety in question very well, and, in his opinion, it was absolutely impossible to distinguish it by the leaves before it flowered. There was nothing extraordinary about a plant in the condition described developing a new break and flowering in November.

Mr. H. J. Chapman said the two divided plants were brought to him by Mr. I'Anson, and they were clearly not the Harefield Hall variety. There was no very obvious difference between the foliage of that and an ordinary insigne. He found spots on the foliage of common insignes and of good ones too. It was a matter of cultivation, and he did not think that as a rule varieties with well spotted flowers had also well-developed spots on the leaves.

Mr. Henry Cook said he was gardener to the Rev. F. Paynter, of Stoke Hill, Guildford, who was a considerable Orchid fancier. Mr. Paynter had purchased a plant from Mr. Keeling in January, 1899, as Harefield Hall variety, which was afterwards split with a view of selling one at the sale of duplicates held in April, 1900. It was advertised in Messrs. Protheroe and Morris' Catalogue, and two gentlemen came down to see it, one of whom pronounced it not to be an insigne at all, but a villosum seedling. Both plants were subsequently returned to Mr. Keeling.

Mr. Holman Gregory, in opening the case for the Defendant, said there was no suggestion made by Mr. Appleton that the plaintiffs had acted fraudulently or improperly. What he said was this. I had a plant of Harefield Hall variety in my house, you came down and saw it, and purchased it. I sent that plant to you, but what you sent back in November was not the variety I sent you, and a mistake had been made by the gardener or somebody. Defendant bought the plant from Mr. Keeling, who himself bought it from a Mr. Young, of St. Albans, in September, 1899, in bud. In November it flowered correctly, and in December he divided it into four parts. Two of those parts were purchased by Mr. Appleton. One was a strong shoot which should have flowered in the ordinary course of events in the autumn of 1900, though as a matter of fact it did not flower till a year later. The other part was the old flowering shoot, which developed a break in the following June. It was this break that was sold to Mr. Low, and expert witnesses would tell the Jury that in the usual course of events it could not possibly flower until November, 1902. After hearing the evidence he should ask the Jury to say that the plants which Mr. Low sent back could not have been produced from the one sold to him, and that in some way a mistake had been made.

Mr. John Brooks, gardener to the Defendant, said in June, 1900, he received an Orchid from Mr. Keeling as the Harefield Hall variety. They had already two plants, and they put the new one with these. One of the two flowered in November, 1900, the other a year later, both true. The third one, received from Mr. Keeling, had one growth with four leaves on, and a small back break. In April, 1901, Mr. Low came and compared these three plants, and selected the one received from Mr. Keeling.

It was duly packed, and taken to the railway station by himself, and he could swear that it was the plant they received. He unpacked the plants returned by Plaintiffs in November, 1901, and he should say they were certainly not parts of the same plant which he had sent them in May. They had grown beyond all reason in Orchid culture, and they did not correspond to the plant which they had sent to Messrs. Low in respect of the markings at the base of the leaves. The three plants agreed in having dusky marks at the base of the leaves. In his opinion it was impossible for the plant sold to Messrs. Low to have flowered in November, 1901.

Mr. W. M. Appleton said that he had been an Orchid grower in a large way for the last eleven years. He bought the disputed plant from Mr. Keeling on May 29, 1900, for £25 or £30, he was not sure which. It was placed with two others of the same variety, and there were no others near with which it could have been mixed. The plant when he purchased it had a break on it, and it subsequently developed another. In the ordinary course of events he should have expected the plant to flower about November, 1902. The two plants that were sent back to him, in his opinion, could not have come from the plant which he sold: there was a difference in the foliage, in the dark markings at the base of the leaves, and the two plants were of such a size that they could not possibly have been grown from the plant he sent. Anyone constantly handling Orchids could recognise a plant from the foliage. He would not say that he could tell a Harefield Hall variety by the foliage, but he should know immediately that a plant having practically no spotting on the leaves was a bad-coloured flower, but if it had spots on the leaves he should infer that it would have a spotted or a darkly-coloured flower. Differences in temperature and light in which the plants were grown would cause variation in the spots.

Mr. A. J. Keeling stated that he carried on business at High View Nursery, Cottingley, Bingley, and had known Orchids all his working life. In November, 1899, he purchased a plant of Harefield Hall variety from Mr. George Young, which flowered true. He divided it into four, and one of these parts was sold to Mr. Appleton. Knowing the plant, he should say it would be an impossibility for it to flower until 1902. He had never seen this variety without spots, and in his opinion the plants produced were not a part of the plant he sold to Mr. Appleton. The leaves were

different in form and texture. He had heard Mr. Cook say that Mr. Paynter bought an Orchid from him which had been returned on the ground that it was not an insigne at all, and which he had taken back. In September he sold another plant of the Harefield Hall variety to a Mr. Riches, and in December, 1901, Mr. Riches wrote saying that it had not proved true. Neither of these returned plants were part of the one sold to Mr. Appleton.

Mr. H. A. Burberry said he carried on business at King's Heath, Birmingham, and had had 30 years experience of Orchid growing, and had been Orchid specialist to the Right Hon. Joseph Chamberlain. All the Harefield Hall variety that he had seen had spots on the foliage. If a plant had spots on the foliage he should expect to find the flower spotted, If a growth were cut off and re-potted in December, 1899, and broke out in May, 1900, he should expect it to bloom in the following November twelve-months; he alluded to a growth, not a back break, the latter he should expect to flower in 1902. If the collar of a plant had been badly strained when travelling, he should expect that to check the growth.

Mr. John Cypher, Queen's Road Nursery, Cheltenham, gave evidence to the same effect.

The Jury said they agreed that the plant sent back by the Plaintiffs was the one received by them, which his Lordship said was a verdict for the Plaintiffs.

Mr. Holman Gregory said if the Jury had reached that conclusion he did not think he could carry the case any further.

His Lordship thought the case had been fought very manfully. No fraud was imputed to Mr. Low, and in that case the whole thing went. All these things that these gentlemen had proved must have been well known to Mr. Low, who is an expert himself, and has been in the trade for many years.

Mr. Holman Gregory said Mr. Appleton had said quite fairly from the beginning that he had not imputed anything improper. He then proceeded to address the Jury on the question of damages. and his Lordship suggested that they should try to arrange the matter. After a short consultation between the parties, a verdict and Judgment for the Plaintiffs for £70 was agreed to, and his Lordship certified for a special Jury.

OBITUARY.

WILLIAM BULL.—We regret to hear of the death of Mr. William Bull, V.M.H., F.L.S., &c., of Chelsea, which took place at his residence, after three days' illness, his age being seventy-four years. Mr. Bull commenced business as a nurseryman in 1861, when he took over the premises and

nursery stock of Messrs. John Weeks & Co., King's Road, Chelsea, but previously he had been traveller for Messrs. Rollisson & Son, and then for Messrs. E. G. Henderson. His Establishment for New and Rare Plants soon became famous for the constant succession of novelties which were sent out from it. His first list contained a number of rare and interesting Orchids, of which Cattleya amethystoglossa was mentioned as a fine novelty, and offered at the price of five and ten guineas, other fine things being Lycaste Skinneri alba, Trichopilia crispa, Aërides affine niveum, A. Warneri, Saccolabium curvifolium, Phalænopses, Cypripediums, Anœctochili, &c. Orchids and Warm-house flowering and ornamental-leaved plants were the principal objects of his business. The former were favourites with him, his knowledge of them being extensive, and his annual exhibition was for years a great centre of attraction. An account of one of these exhibitions may be found in our second volume (pp. 213-214). About the year 1880 Mr. Bull sent out Mr. E. Shuttleworth and Mr. J. Carder in search of Orchids and other plants, as a result of which a good many interesting things were introduced, two of those which occur to us being Oncidium tetracopis and O. cryptocopis, allies of O. macranthum. His success was largely due to his energy and business acumen, whatever he undertook being carried out thoroughly. Of late years he had turned his attention to Orchid hybridising, though the results for the most part have yet to be seen, this being a work in which a good deal of patience is necessary. His death creates a vacancy in the ranks of the Victoria Medallists of Horticulture.

H. H. HUNNEWELL.—This well-known gentleman passed away at his residence, Wellesley, Mass., on May 20th, after a long illness, at the mature age of 92 years. He was a liberal patron of horticulture, and his garden was one of the most famous in the United States, including fine collections of Orchids, Rhododendrons, Coniferæ, &c., all of which were great favourites with him. He was one of the leading exhibitors of Orchids at the meeting of the new Horticultural Hall, at Boston, Mass., in July, 1901, when the unique idea of arranging the exhibits systematically, irrespective of ownership, was carried out, some six-hundred specimens being arranged in their respective genera, with only a special mark for their subsequent identification. He had been a member of the Massachusetts Horticultural Society for fifty years, and a member of Harvard University, who had conferred upon him the honorary degree of M.A., in recognition of his scholarly proclivities and his many public services. He is commemorated by the pretty little Odontoglossum Hunnewellianum (Rolfe), which was named after him in 1889.

ODONTOGLOSSUM × ARMAINVILLIERENSE VAR. ARDENTISSIMUM.

At the recent Temple Show a remarkably handsome Odontoglossum was exhibited by Mr. Ch. Vuylsteke, of Loochristi, Ghent, under the name of O. × ardentissimum, to which a First-class Certificate was given, as

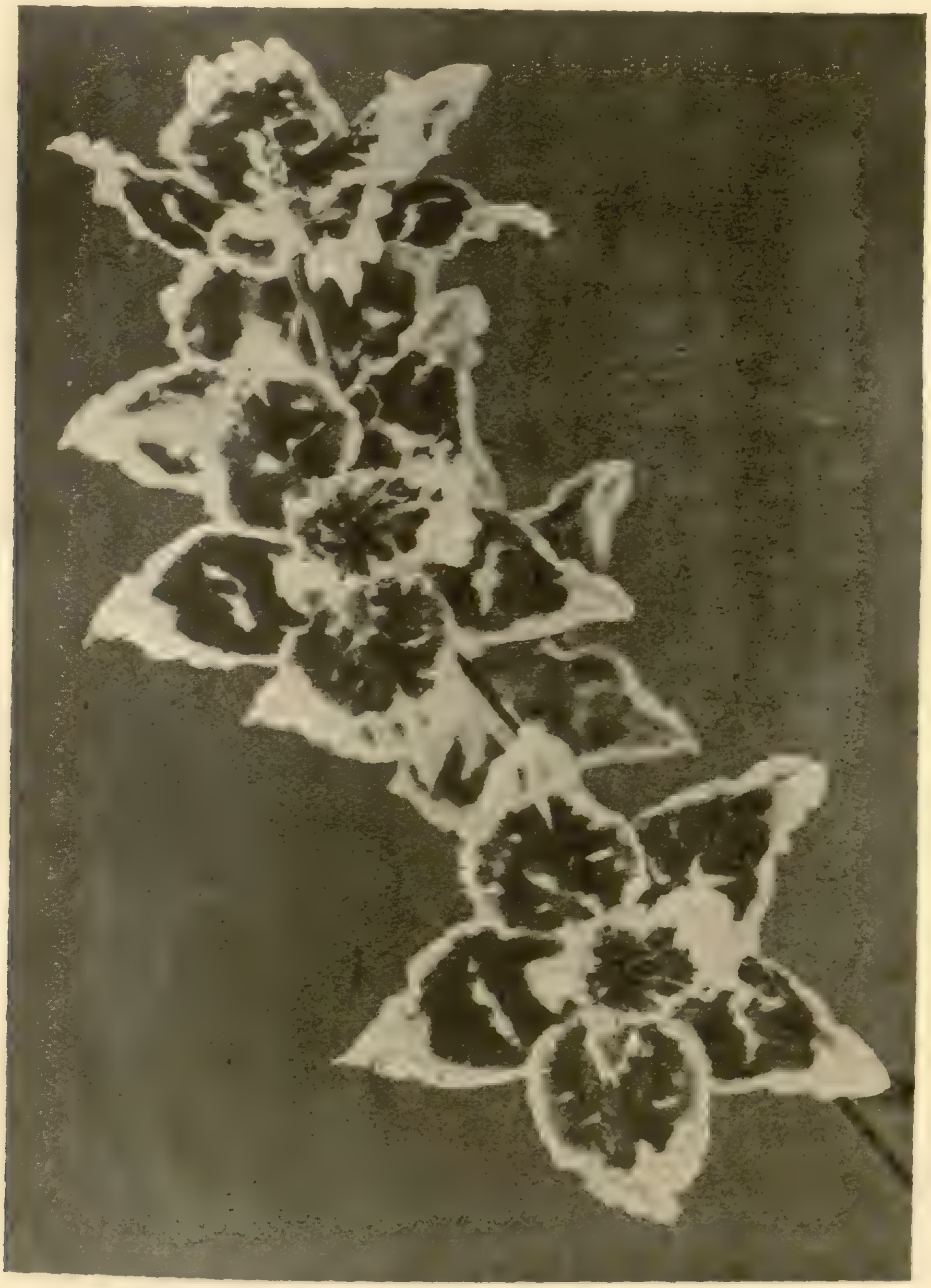


FIG. 22. ODONTOGLOSSUM × ARMAINVILLIERENSE VAR. ARDENTISSIMUM.

recorded at p. 175. Most of the papers recorded it as O. crispum ardentissimum, but whether this was a mistake or a change of name by the Orchid Committee is not apparent. On examining it we were immediately struck with the combination of characters of O. Pescatorei and O. crispum that it presented, and concluded that it had been raised by crossing the former with a heavily spotted form of the latter. There were three other handsome spotted forms in the collection, labelled O. × concinnum, O. ×

dulce, and O. × venificum, each of which received an Award of Merit, and these, though different, also presented the characters of the same two species. We therefore wrote to M. Vuylsteke, indicating our belief that all were hybrids as indicated above, and asked him to state what he knew of the history of these plants, as it had an important bearing on the question of natural hybrids. M. Vuylsteke kindly replied, saying :—" O. × ardentissimum is a hybrid between an extra fine, heavily reddish spotted O. crispum and an extra fine O. Pescatorei with large mauve spots, very likely the finest form except Veitchianum. O. × dulce, concinnum, and venificum are from the same hybridisation. I have a great many plants in flower, but they are mostly whites, the finely spotted forms are very limited."

This is extremely interesting, and enables the matter to be cleared up. The four forms mentioned must be classed as varieties of O. × armainvillierense, which was raised by M. Jacob, gardener to Baron Edmond de Rothschild, Armainvilliers, France, from O. Pescatorei crossed with O. crispum, and exhibited at a meeting of the Société Nationale d'Horticulture de France, on December 22nd, 1898, when it received a First-class Certificate. It was noted as a superb form, perfect in shape, with some dark spots (*Journ. Soc. Nat. Hort. Fr.*, 1898, p. 1240).

The annexed illustration represents M. Vuylsteke's plant—which is reproduced from a photograph taken by Mr. J. Gregory, of Croydon—and shows well the intermediate shape; and it may be added that the characters of O. Pescatorei are as obvious in the column wings and crest as in the pandurate shape of the lip. The markings are claret-colour or vinous purple, and the ground colour white. It is extremely handsome, and according to a note in the *Journal of Horticulture* was purchased by an amateur for £425. The varieties concinnum, dulce, and venificum all showed the same unmistakable Pescatorei influence, but not having flowers for examination we can add nothing to the brief characters given at p. 175.

An interesting question remains to be cleared up, namely, whether O. crispum and O. Pescatorei grow anywhere together. There is the record of O. crispum, triumphans, harvengtense and Pescatorei coming home together (*Orch. Rev.*, vii., p. 167). Then came positive confirmation that O. crispum and triumphans grow intermixed, both in the record that M. Claes had seen them growing together (*l.c.*, p. 326, 327), and also in the occurrence of O. × loochristiense, the natural hybrid between them, in importations of O. crispum. We know that near Ocana O. triumphans and O. Pescatorei grow and hybridise together (yielding O. × excellens), and it would be interesting to know whether O. Pescatorei also reaches the O. crispum district. We believe that one or two curious forms which have appeared among the latter have been suspected of such an origin, but the question has never been cleared up. We should like to see a flower of

some of those raised by M. Vuylsteke, even the very commonest of them. It would also be interesting to see a flower of every distinct form from this particular cross, just to see how great a range of variation can be obtained out of a single capsule.

R. A. R.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on June 10th, when there was a good display of Orchids.

H. T. Pitt, Esq., was awarded a silver-gilt Flora Medal for a magnificent group of Orchids, containing Odontoglossum crispum Pittianum, O. c. Alexandra-Regina, O. c. Corona, O. c. Lady of the Lake, O. c. Purity, O. c. Curiosity, having some purple spots inside the slightly incurved margin of the petals, and other crispum varieties, O. Hunnewellianum, O. sceptrum, O. citrosmum, O. Rossii majus, O. nebulosum, O. Hallii, and other Odontoglossums; Bulbophyllum barbigerum, B. Lobbii, Thunia Marshalliana, T. Bensonæ, Cymbidium tigrinum, Platyclinis filiformis with many graceful racemes, Chondrorhyncha Chestertoni, Epidendrum Medusæ, Pescatorea Klabochorum, Promenæa citrina, Anguloa Clowesii, Dendrobium revolutum, D. Falconeri giganteum, D. Dearii, Cattleya Mossiæ, C. Mendelii, C. intermedia Parthenia, Lælio-cattleya × Canhamiana, L.-c × Hippolyta, Lælia tenebrosa, L. purpurata, Miltonia vexillaria, M. Roezlii, M. Phalænopsis, Cypripedium Chamberlainianum, C. × Swanianum, C. callosum Sanderæ, C. × Wiertzianum, and others.

Sir F. Wigan, Clare Lawn, East Sheen (gr. Mr. Young), received a Silver Flora Medal for a fine group, containing many fine forms of Cypripedium bellatulum, including two of C. b. album, six plants of C. Godefroyæ leucochilum, C. callosum Sanderæ, Masdevallia Carderi, Cochlioda Nœtzliana, Eria acervata, Cymbidium tigrinum, Lælia purpurata, some well-flowered L. majalis, Cattleya Mossiæ, a fine example of Epidendrum prismatocarpum with many spikes, many forms of Odontoglossum crispum, including O. c. Albion, a fine white, O. c. marmoratum, O. × Adrianæ and many others.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), received a Cultural Commendation for a magnificent specimen plant of Cattleya Mossiæ, completely covered with its beautiful flowers, some forty-eight in number.

H. S. Leon, Esq., Bletchley Park (gr. Mr. A. Hislop), received an Award of Merit for a fine flower of Lælio-cattleya × Mabel (C. Trianæ × L. tenebrosa), having sepals and petals rose, suffused with bronze, and the lip rose with dark purple veining in front.

H. Little, Esq., Baronshalt, E. Twickenham (gr. Mr. Howard), showed a very fine dark form of Cattleya Warneri Little's variety, to which an Award of Merit was given.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), showed a fine example of Cattleya Warscewiczii bearing seven flowers on two spikes.

J. Colman, Esq., Gatton Park (gr. Mr. Bound), showed a fine purple-tinted Odontoglossum crispum, and a good plant of Lycaste brevispatha.

J. G. Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), showed a fine example of Cypripedium callosum Sanderæ bearing four flowers.

Mrs. Haywood, Woodhatch Lodge, Reigate (gr. Mr. Salter), showed a good white variety of Odontoglossum crispum, called Distinction.

The Rev. F. Mason, The Firs, Warwick, showed two varieties of Cattleya Mossiæ, one having variegated petals.

A. Warburton, Esq., Vine House, Haslingden, sent an inflorescence of the handsome Odontoglossum crispum Luciani, having flowers heavily blotched with claret-purple in front, and suffused with purple at the back.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Cypripedium Lawrenceanum Colossus, a very large variety, and a well-cultivated plant of C. L. hackbridgense, bearing two of its richly coloured flowers.

Messrs. J. Veitch & Sons, Chelsea, were awarded a Silver Banksian Medal for a group of showy hybrids, including Lælio-cattleya × Aphrodite alba, L.-c. × Canhamiana, L.-c. × Wellsiana, L.-c. × Lycias, L.-c. × Hippolyta, Epicattleya × matutina, Epilælia × Charlesworthii, Odontoglossum Wallisii, some good O. crispum, O. Wallisii, and others.

Messrs. Stanley, Ashton & Co., Southgate, received a Silver Banksian Medal for a good group, containing many Odontoglossum crispum, O. × Adrianæ, O. × loochristiense nobilius, Cypripedium × A. de Lairesse (Rothschildianum × Curtisii), C. × Euryale, Cattleya Mossiæ, C. Mendelii, Lælia purpurata, Brassavola Digbyana, and others.

Messrs. Hugh Low & Co., Enfield, exhibited a very fine example of Cattleya Mendelii, and other Orchids.

Mr. H. A. Tracy, Twickenham, showed a small group of varieties of Cattleya Mossiæ, many of them very beautiful, including C. M. Wageneri with four flowers, C. M. Arnoldiana, C. M. Reineckiana, C. M. delicata, and C. M. Tracy's variety, with a white flower tinged with blue and with a slate-blue lip.

Messrs. B. S. Williams & Son, Holloway, staged a good group, containing Lælia purpurata, L. tenebrosa, Cattleya Mossiæ, Lælio-cattleya × cinnabrosa, Thunia alba, Miltonia vexillaria, Pescatorea Dayana, Cœlogyne Massangeana, and various Cypripedes.

A SECOND meeting was held on June 24th and 25th, at Holland House, Kensington, by kind permission of the Earl of Ilchester, in connection with the Coronation Rose Show, and, as at the Temple Shows, Orchids formed the leading feature, the group contributed by Messrs. Sander & Sons being one of the finest ever brought together.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), staged a fine group of Cattleyas and Lælias, including C. Mossiæ and its varieties Wageneri, fulgens, Reineckiana, cœlestis, and Arnoldiana, C. Mendelii and varieties, Lælio-cattleya × Wiganiæ, L.-c. × Canhamiana, and two beautiful varieties, L.-c. × Arnoldiana, L.-c. × Hippolyta langleyensis, L.-c. × eximia, L.-c. × Wiganiæ, Brassavola Digbyana, two fine plants of Sobralia macrantha alba, bearing 28 flowers and buds, Odontoglossum × spectabile and others. An Award of Merit was given to Cattleya × Prince Edward (Schilleriana × Warscewiczii), a pretty rose-purple flower with some crimson-purple veining on the lip; and Awards of Merit were granted to the fine richly-coloured Miltonia vexillaria gigantea, and the beautiful natural hybrid Sobralia × Wiganiæ (macrantha × xantholeuca).

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), received a Cultural Commendation for a fine profusely-flowered plant of the curious Maxillaria scurrilis, and a similar award for a magnificent example of Habenaria rhodochila.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), gained an Award of Merit for Cypripedium Godefroyæ leucochilum Hessle var., a beautiful light-yellow variety having the sepals and petals covered with a broad network of purple-brown.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), staged a fine group, in which a very good example of Oncidium macranthum, together with many fine Masdevallies and Odontoglossums, were specially noticed.

Messrs. F. Sander & Sons, St. Albans, staged a magnificent group, occupying about 350 square feet, each plant standing out by itself, and the more prominent being placed on hillocks of short green moss, which set them off to great advantage. It was notable for the great number of forms of Odontoglossum crispum it contained, no less than four Awards of Merit being given to varieties of this beautiful Orchid. Among others were many Lælio-cattleyas, including L.-c. × Henry Greenwood, L.-c. × Aphrodite, L.-c. × Canhamiana, L.-c. × Our Queen, and L.-c. × Memoria Baroness Schröder, together with the handsome rose-purple Cattleya × H. G. Selfridge (superba × Aclandiæ), a well grown example of the orange-scarlet Cochlioda Nœtzliana, Epidendrum prismatocarpum with eighteen spikes, the yellow Phaius × Ashworthianus, Cypripedium Lawrenceanum and various others, forms of Miltonia vexillaria, and many other fine things. A First-class Certificate was gained by Miltonia vexillaria

Queen Alexandra, a very large pure white variety, slightly tinged with yellow and bearing three purple lines at the base of the lip. Awards of Merit were given to Odontoglossum crispum Her Majesty, having a large white well-shaped flower; O. c. Princess Helen, with a very finely-spotted flower; O. c. Princess Victoria; and O. c. Imperatrix Reginæ, a fine purplish rose form, with some reddish purple in the middle of each segment, and some white at the base; O. × harvengtense Princess Margaret, a good form having white flowers heavily blotched with red brown; *Zygonisia* × Rolfeana (Aganisia lepida × Zygopetalum maxillare Gautieri), having whitish flowers, mottled with violet, and intermediate in structure; Cattleya × Prince Edward (Schilleriana × Warscewiczii); and Lælio-cattleya × Martinetii Prince Arthur, the latter a very good form, having the sepals and petals yellow, tinged with rose and the lip dark rose veined with purple.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a very good group, containing Lælio-cattleya × Canhamiana alba, L.-c. × G. S. Ball, L.-c. × Lady Miller, Odontoglossum × Harryano-triumphans, O. × Alexandra-Regina (Schleiperianum × grande), and many other rare and beautiful species. An Award of Merit was given to Odontoglossum crispum punctatissimum Princess Maud, a fine flower tinged with lilac and profusely spotted with purple.

Messrs. Stanley, Ashton & Co., Southgate, showed a fine group of Odontoglossum crispum varieties, many Lælio-cattleyas, including L.-c. × Massangeana, Lælia tenebrosa, Brassavola Digbyana, Thunia Bensonæ, a good Cattleya Mendelii, and some Cypripediums. An Award of Merit was given to Cattleya × Miss Harris superba (Schilleriana × Mossiæ), having purplish rose sepals and petals, and the lip rose-carmine with darker veining.

Messrs. J. Cowan & Co., Gateacre, Liverpool, staged a good group of Cattleyas, Lælias, Odontoglossums, Cypripediums, &c.

Mr. J. Cypher, Cheltenham, showed a fine group in which the showy species of the season were displayed to great advantage.

Messrs. Fisher, Son, and Sibray, Handsworth, Sheffield, also staged an effective group, in which was a finely blotched Odontoglossum crispum called Sir Alfred Milner.

Messrs. H. Low & Co., Bush Hill Park exhibited a good group containing the interesting Masdevallia muscosa, Lælio-cattleya × Canhamiana, L.-c. × Pallas, Vanda Hookeriana, V. × Miss Joaquim, Cypripedium Lawrenceanum Hyeanum and others.

M. A. A. Peeters, Brussels, showed cut flowers of Lælio-cattleya × Martinetii and a plant of a fine variety of it called Coronation.

Messrs. J. Veitch & Sons, Chelsea, staged a group of forms of L.-c. ×

Canhamiana and other hybrids, together with a fine form of Cattleya Mossiæ.

Manchester and North of England Orchid.

A Meeting of this Society was held in the Coal Exchange, Manchester, on May 15th, but owing to the fact of the Manchester Whitsuntide Show opening on the following day, there were very few plants exhibited.

R. Ashworth, Esq., Newchurch (gr. Mr. Pidsley), staged a small group of fine things, including good forms of Cattleya Mendelii, C. Schrœderæ alba, Odontoglossum crispum var. Varro, a handsomely spotted form, and O. triumphans var. Jupiter, the two latter receiving Awards of Merit.

M. Wells, Esq., Sale (gr. Mr. Lamb), received an Award of Merit for Odontoglossum × Adrianæ var. Charlemagne, a handsome pale form.

Messrs. John Cowan & Co., Gateacre, sent an interesting collection of Masdevallias from the Hincks collection, mostly hybrids, and received Awards of Merit for M. × Fraseri, M. × Leda, and M. Harryana var. miniata.

At the meeting held on June 5th there was again a fine display, and certificates were awarded as follows:—

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), received a First-class Certificate for Odontoglossum Pescatorei virginalis, and Awards of Merit for O. crispum Gratrixianum, O. c. West Point variety, Lælio-cattleya × General Baden-Powell, and Lælia tenebrosa West Point variety.

R. Ashworth, Esq., Newchurch (gr. Mr. Pidsley), received a First-class Certificate for Odontoglossum crispum Calypso, and an Award of Merit for Lælio-cattleya × Canhamiana ashlandense.

Dr. Hodgkinson, The Grange, Wilmslow (gr. Mr. Woore), received a First-class Certificate for Lælio-cattleya × Phœbe superba.

A. Warburton, Esq., Haslingden (gr. Mr. Lofthouse), received a First-class Certificate for the beautiful Odontoglossum crispum ardentissimum.

William Bass, Esq., received an Award of Merit for Odontoglossum crispum Mrs. Hamar Bass.

T. Baxter, Esq., Morecambe (gr. Mr. Roberts), received an Award of Merit for Odontoglossum × loochristiense Lord Kitchener.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), received an Award of Merit for Lælia majalis Bridge Hall var.

Messrs. Charlesworth and Co., Bradford, were awarded a First-class Certificate for Cattleya × Jupiter (Lawrenceana × gigas), and Awards of Merit were granted to Miltonia vexillaria albescens, Odontoglossum × elegantius, and Lælio-cattleya × Lady Wigan.

M. A. A. Peeters, Brussels, received a First-class Certificate for Odonto-

glossum × nobilior, and an Award of Merit for Lælio-cattleya × Canhamiana Peeters' var.

Messrs. H. Low & Co., Enfield, received an Award of Merit for Cattleya Mossiæ Arnoldiana superba.

At the meeting held on June 19th, the display of Orchids was smaller, and the Awards were fewer in number.

R. Briggs-Bury, Esq., Accrington (gr. Mr. Wilkinson), received First-class Certificates for Cattleya Mossiæ Reineckiana magnifica, and Odontoglossum crispum Empress of India, and Awards of Merit for O. c. La Belle Alliance, and O. c. Irene.

W. Thompson, Esq., Stone (gr. Mr. Stevens), received an Award of Merit and a Cultural Commendation for both Odontoglossum crispum splendidissimum and Cochlioda Nœtzliana, the plants being splendidly grown.

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), received an Award of Merit for Odontoglossum crispum xanthotes Gratrix's var.

T. Statter, Esq., Whitefield (gr. Mr. Johnson), gained an Award of Merit for Lælia purpurata Stand Hall var.

R. Tunstill, Esq., Burnley (gr. Mr. Balmforth), received an Award of Merit for Cypripedium × Edithæ.

PHALÆNOPSIS MARIÆ.

The pretty little Phalænopsis Mariæ has always been rare in cultivation and of late years has almost been lost sight of; it is therefore interesting to note that a plant from the collection of Dr. Hodgkinson, The Grange, Wilmslow, appeared at a meeting of the Manchester Orchid Society, on June 8th. The species was described and figured in Williams' *Orchid Album*, in 1883 (vol. ii, t. 80, and sub. t. 87), and afterwards in the *Botanical Magazine* (t. 6964), and is now known to be a native of the Sulu Archipelago and the adjacent Philippine islands, having been originally discovered by Mr. Burbridge, in 1878, in the main island of Sulu, at an elevation of 2,000 feet above sea level, when collecting for Messrs. James Veitch & Sons. Mr. Burbridge states that only four plants were originally found, although a large sum was offered for specimens of it to the natives, in whose language it is known as the Rain-flower, on account of its opening its blossoms at the commencement of the wet monsoon. It has since been collected in the Philippines, presumably in Mindanao, for it is said that P. Mariæ, P. Sanderiana, and Vanda Sanderiana are abundant. It is allied to P. sumatrana, but has a longer, more branched inflorescence, of smaller flowers, with a less densely hairy lip. The flowers are cream white, with several large transverse warm brown blotches on the sepals and petals, and an amethyst purple lip having a white apical margin.

ODONTOGLOSSUM CRISPUM LADY JANE.

We are now able to give a figure of the remarkable Odontoglossum crispum Lady Jane, from the collection of J. Wilson Potter, Esq., of Croydon, to which a First-class Certificate was given at the recent Temple Show. The plant first flowered in July, 1900, and was exhibited at a meeting of the Royal Horticultural Society, and described in our pages (viii., pp. 250, 277). It was then feared that it might be an accidental sport, and would not flower true on the next occasion, but the

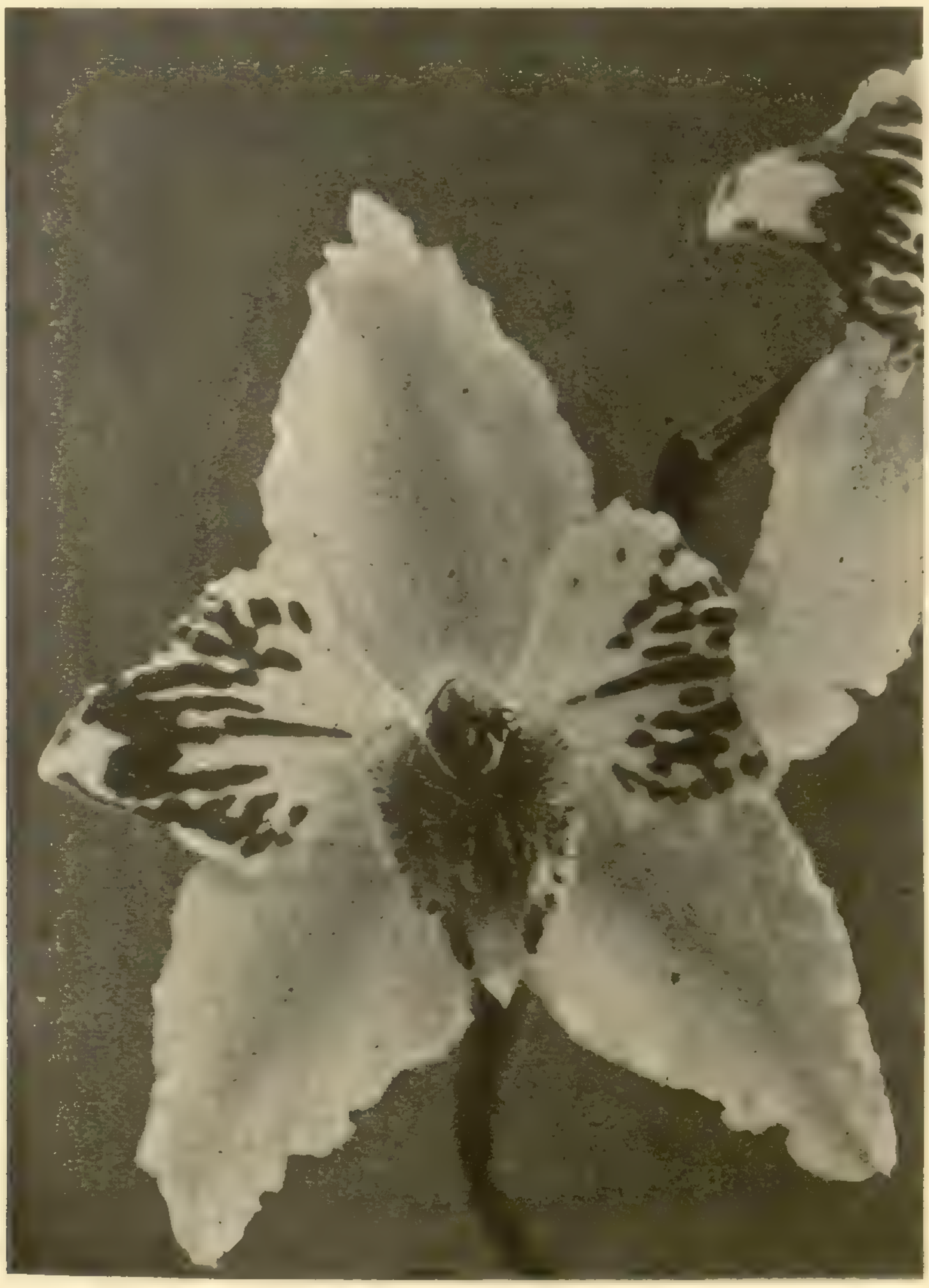


FIG. 23. ODONTOGLOSSUM CRISPUM LADY JANE.

fear proved groundless, for a year later it flowered again in greatly improved condition, besides retaining all its remarkable character. A flower sent in proof of this measured $3\frac{3}{4}$ inches across its broadest diameter (*O.R.*, ix., p. 221). At the recent Temple Show it again appeared, bearing a fine compact spike of seven flowers, and there can no longer be any doubt of its permanence. The illustration is prepared from a photograph taken by Mr. J. Gregory, of Croydon, and shows its remarkable character.

The brown markings on the petals consist partly of somewhat interrupted lines, a condition which we do not remember in any other variety, and another unusual character is that they are absent from the sepals, in which organs we get a pretty suffusion of blush pink. As in the case of O. c. Oakfield Sunrise (noted at page 106 of our eighth volume), there is something morphologically abnormal about the petals, and the flowers may be considered as in a peloriate condition. It is very beautiful, and it may be added that Mr. Gregory also sent a second photograph, showing the entire inflorescence, as exhibited at the Temple Show, but this, being necessarily considerably reduced in size, was not considered so suitable for reproduction. Mr. Potter must be congratulated on the possession of such a remarkable variety.

PAPHIOPEDILUM BARBATUM.

UNTIL recently comparatively little has been known about the distribution of this well-known species beyond the fact that it is a native of Mt. Ophir, Malacca, where it was discovered by Cuming in 1840, and sent to Messrs. Loddiges, at Hackney, and shortly afterwards was sent to Messrs. James Veitch & Sons, from the same locality. Mr. H. N. Ridley, Director of the Singapore Botanic Garden, has supplied some additional information. He states:—"This well-known species is often most abundant, sometimes covering rocks in masses, as on Penang Hill. On Mt. Ophir and Kedah Peak, though plentiful, it is more scattered, growing in moss by the stream in exposed places. Nearly all the named cultural varieties grow together. C. superbiens, Reichb. f., in *Bonplandia* iii. (1855), p. 227, I am quite unable to distinguish specifically; it seems to be merely a fine form, and is said to have been obtained on Mt. Ophir; it is commonly called *Bunga Kasut* (Shoe flower) by the Malacca natives."—*Journ. Linn. Soc.*, xxxii., p. 414. Mr. Ridley also mentions it as found on the Remban Hills, Malacca, and a single plant was found in dense jungle at Gunong Panti, in Johore. Messrs. Hugh Low & Co. have now obtained it a new locality, their collector having obtained it from Gunang Tahan, Pahang, at an altitude of 3,000 feet, this being some distance north of the original locality.

This additional information is interesting, but I cannot help thinking that some mistake has been made about C. superbiens. The shape of its dorsal sepal is so different, the purple lines are absent, and the petals are densely spotted right to the apex. In short both shape and colour are so different that I cannot understand any one who knows it remarking that he is quite unable to distinguish it specifically. In any case it would be interesting to know if Mr. Ridley has really re-discovered this beautiful but rather mysterious plant. Messrs. Veitch remark respecting it:—"A special

interest is attached to this Cypripede from the fact that all the numerous specimens now growing in Orchid collections have been derived from two plants; the botanical history of the species is, however, obscured by the uncertainty attending the origin of one of the two—the first introduced, which was received by Messrs. Rollisson, it is said, either from Java or Assam; this plant was sold to Consul Schiller, of Hamburg, in 1855, whence it afterwards became distributed, by division, among European collections. The second plant appeared among an importation of C. barbatum, collected for us in 1857 by Thomas Lobb, on Mount Ophir, near the southern extremity of the Malayan Peninsula. The probability is very great that Messrs. Rollisson's plant did not come from either of the localities assigned to it, but from Mount Ophir, an hypothesis supported by the circumstances that no difference has been observed between the progenies of the two plants. Although originally found mixed with C. barbatum, its nearest affinities are with C. Curtisii and C. ciliolare." This evidence seems definite enough, but I have not heard of its re-introduction, though I know it has been searched for with this object in the Mt. Ophir district. Something remains to be cleared up.

R. A. ROLFE.

THE HYBRIDIST.

LÆLIO-CATTLEYA × HODGKINSONÆ.—A very handsome hybrid raised in the collection of Dr. Hodgkinson, The Grange, Wilmslow, it is believed from Lælia harpophylla ♀ and Cattleya Mossiæ ♂. The first-named species was crossed with C. Mossiæ, C. Trianæ, and Lælia tenebrosa, the records of crossing and sowing of the seeds being, as usual, carefully kept, but this seedling came up on another basket, where it was probably blown accidentally. The pollinia are those of Lælio-cattleya, and the characters of the hybrid suggest C. Mossiæ rather than C. Trianæ as the pollen parent. The gracefully recurved sepals and petals, the details of the lip, the time of flowering, and the general resemblance of L.-c. × Hippolyta (L. cinnabarina × C. Mossiæ) all point in this direction. We hope it will be possible to settle the question finally when other seedlings flower. The plant created rather a sensation when exhibited at a meeting of the Manchester Orchid Society, on July 5th, and was awarded a First-class Certificate. It is dedicated to Mrs. Hodgkinson. The flower sent is very beautiful, the sepals and petals gracefully recurving, with an expanse of 5½ inches. The colour is a beautiful Indian yellow or flame-colour, and the lip finely shaped, the front lobe very undulate, and of the richest velvety crimson, with a buff margin, and the side lobes Indian yellow, slightly veined, with the disc deep bright yellow.

PAPHIOPEDILUM × BURBAGENSE.—A fine hybrid raised by Captain C. C. Hurst, Burbage, Hinckley, from Paphiopedilum × insigne Chantini ♀ and P. × selligerum rubrum ♂. The habit is said to be vigorous, and the leaves dark green and thick, but otherwise intermediate. The scape sent is two-flowered, the flowers on the whole most resembling those of the pollen parent. The dorsal sepal is broadly rounded, two inches broad, and closely lined with dark brown on a light ground, which becomes white at the margin, and the lines may be described as for the most part made up of rows of narrow confluent spots. The petals are drooping, acute, 3 inches long, and purple-red in colour, becoming yellowish at the base, with some spots on the lower halves. The lip is purple-brown, most resembling that of the pollen parent; and the staminode is concave, hairy, broader than long, and truncately obcordate. It was raised in 1898, and has evidently not yet reached its full development, for the lower flower is imperfect.

ZYGOPETALUM × ROEBLINGIANUM.—In a report of the second annual spring show of the Horticultural Society of New York, held on May 14th and 15th in the New York Botanical Garden, we find the following short note of a new hybrid *Zygopetalum*:—"Mr. C. J. Roebling (gardener, H. T. Clinkaberry), Trenton, N. J., sent a new hybrid *Zygopetalum* (rostratum × Gautieri), and named *Z.* Roeblingianum. It is about the prettiest of all the *Zygopetalums* we have seen and has large flowers (certificate)."—*Amer. Gard.*, xxiii., p. 324. There is nothing in the way of description, but with a knowledge of the parents we can form some idea of what the hybrid would be like.

ZYGONISIA × ROLFEANA.—This is a new generic hybrid, raised by Messrs. Sander & Sons, St. Albans, between Aganisia lepida ♀ and *Zygopetalum* Gautieri ♂, to which an Award of Merit was given at the recent R.H.S. meeting at Holland House. It bears a general resemblance to *Zygocolax*, and has flowers of intermediate structure, and the colour whitish spotted with violet.

LÆLIO-CATTLEYA × ACIS.—A promising hybrid between Lælia tenebrosa and Cattleya Mendelii is sent from the collection of Sir James Miller, Manderston, Duns, N.B., by Mr. Hamilton. It is said to have been raised by Messrs. Sander & Sons, and most resembles the Cattleya parent in habit. The flowers are fairly intermediate, and yellowish white in colour, with a light violet-purple lip.

We note with surprise the reference "Cattleya Clymene, L. Lind. in *Orch. Rev.*, 1901, p. 302," in a recent issue of the *Lindenia* (t. 761). The article was not written by M. Linden, nor was any suggestion made as to the name the plant should bear when the flowers were sent.

ORCHIDS IN SEASON.

SEVERAL beautiful Orchids are sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno (gr. Mr. Axtell). First we may mention an exceptionally dark form of Cattleya Mendelii, the sepals and petals being bright lilac-purple, the latter having a large purple, partially feathered blotch at the apex, and the front lobe of the lip bright ruby purple —a very handsome form. Anguloa × dubia is a very interesting natural hybrid, between A. Clowesii and A. uniflora, whose history was given at page 207 of our last volume. The colour is light yellow, with innumerable minute red dots on the inner face of the petals; and the lip white, with many red-brown spots more or less confluent into a blotch on either side near the base. Oncidium chrysodipterum, Veitch, is a handsome species of the superbiens group, having deep yellow petals blotched with red-brown at the base, which is believed to be identical with O. tetracopis, Rchb. f. The others are, a light yellow form of Odontoglossum × Andersonianum with few spots, and a very distinct light yellow form of O. × Adrianæ, having the sepals suffused with rose-purple, but only a little irregular spotting on the flower, the petals being for the most part unspotted. It was imported as O. crispum, but has the typical Adrianæ shape, with the unmistakable crest and nearly entire, spotted column-wings, all of which show the influence of O. Hunnewellianum.

An extremely fine flower of Miltonia × Bleuana nobilior is sent from the collection of Captain Holford, Weston-Birt, Tetbury, by Mr. Alexander. The lip measures $2\frac{7}{8}$ inches in diameter, and has a large reddish-maroon blotch above the yellow base, from which radiate lines of similar colour. The base of the petals is suffused with rose-purple, and the rest of the flower white.

A good brightly-coloured form of Lælia × cinnabrosa is sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow, by Mr. Oliver; also a large and richly-coloured form of Cattleya Mossiæ from a small imported plant; and an inflorescence of Rhynchostylis retusa.

Three fine flowers of Cattleya Warscewiczii are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, one of which has petals five inches long, and the front lobe of the lip three inches broad —a noble looking flower. A fine hybrid between Paphiopedilum × Swanianum ♀ and P. Lawrenceanum atrorubens ♂ is also sent, together with its two parents, also a good flower of P. × almum Cooksoni, and what we take to be a form of P. × Gowerianum. It is said to be a seedling from P. Curtisii, but has more of the character of P. Lawrenceanum, both in flower and foliage.

LÆLIA GRANDIFLORA AT BRIDGE HALL.

In our last volume we published an account of the culture of Lælia grandiflora (majalis) in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, accompanied by a photograph of a group (page 265). Mr. Rogers now writes that this year they have done much better, thirty growths having flowered on the fifteen plants they now have, and several of the spikes being twin-flowered. Not a single plant has failed to flower this season. Three finely-developed flowers are sent, which enable one to realise to some extent what the effect must have been when all were together, the blooms being more than twice as numerous as when our illustration was taken. Those who do not succeed with this difficult species should study the cultural details given last year, for with such a record it is difficult to realise that it sometimes has the reputation of being a shy flowerer.

CATTLEYA ROEZLII.

The question whether this plant is a natural hybrid or not was discussed some time ago (*Orch. Rev.*, ix., p. 253), and now a flower kindly sent by M. J. Ragot, Villenoy, France, from the very plant which called forth the remarks of M. Otto Ballif, will, I hope, enable the matter to be settled. The history of the plant has already been given. In the flower sent I cannot find a single essential feature of C. Mossiæ; the characters are entirely those of C. Lueddemanniana, often cultivated under its later name of C. speciosissima, a plant which I believe can always be identified in the actual flower by the marked characters of the lip. It is darker in tint than the coloured plate given in the *Revue Horticole* (1888, p. 572), which may only be a form of the same variable Cattleya, though M. Bleu thought it intermediate in character. Some of the essential characters are not shown in the plate. If it is the original C. Roezlii of Reichenbach, of which Roezl is said to have introduced "6,000 plants at once," we may dismiss the idea of its being a natural hybrid entirely. Whether a natural hybrid between C. Mossiæ and C. Lueddemanniana actually exists is a much wider question. Roezl indicates C. Mossiæ as growing much further east than C. Roezlii, but C. Lueddemanniana seems to have been unknown to him, which is quite explicable on the theory that Roezlii is Lueddemanniana. And no author, so far as I can find, has shown that the two species in question grow together. Even the supposed natural hybrids between them are said to have come from Brazil, which only shows how vague most of the information is. M. Ragot has shown his interest in the question by forwarding the flower, and I hope someone will inter-cross the two species,

and let us see the result; also forward any further evidence that may exist as to their growing together or otherwise. It may be added that the two are distinct vegetatively as well as in the floral organs, for C. Lueddemanniana flowers on the young pseudobulbs, without resting, but C. Mossiæ on those of the previous year, after resting during the winter.

R. A. ROLFE.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during July, on the 8th and 22nd, when the Orchid Committee meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on July 17th, this being the only meeting of the month. The Orchid Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

The last part of Messrs. Cogniaux and Goossens' *Dictionnaire Iconographique des Orchidées* contains figures of the following:—Cypripedium × Eucharis var. Fournierianum, C. × Germinyanum, C. × Rhodopsis (Charlesworthii × enfieldense), Galeandra Beyrichii, Lælia harpophylla, L. præstans aurea, Lælio-cattleya × Doris var. Marquis de Colbert, L.-c. × Gladys (Harrisoniana violacea × L. cinnabarina), L.-c. × Madame Marguerite Fournier (L. Digbyana × C. labiata), Odontoglossum tripudians, Phalænopsis × leucorrhoda, Rhynchostylis retusa, and Sophrocattleya × Nydia.

A photographic illustration of the fine group exhibited at the Temple Show by Messrs. Charlesworth & Co., Heaton, Bradford, appears in a recent issue of the *Garden* (p. 371).

A photographic illustration of a group of hybrids from the collection of Sir James Miller, Manderston, Duns, N.B., is sent by Mr. Hamilton. Prominent among them we note Lælia × Latona, Lælio-cattleya × Gen. Baden Powell, and L.-c. × Hippolyta.

ORCHID PORTRAITS.

CATTLEYA GIGAS MEULENAEREANA.—*Lindenia*, t. 775.

C. INTERMEDIA NIVEA.—*Garden*, 1902, lxi., p. 192, with fig.

CYMBIDIUM RHODOCHILUM, Rolfe.—*Garden*, 1902, lxi., p. 383, with fig.

C. × ZALESKIANUM, L. Lind.—*Lindenia*, t. 778.

CYPRIPEDIUM CALLOSUM SANDERÆ.—*Gard. Chron.*, 1902, xxxi., p. 435, with suppl. fig.

C. × Emperor of India.—*Gard. Chron.*, 1902, xxxi., pp. 413, 415, fig. 153.

C. × Lathamianum imperiale.—*Lindenia*, t. 774.

C. × Leeanum Alexandræ.—*Lindenia*, t. 776.

Dendrobium Pierardi.—*Garden*, 1902, lxi., p. 193, with fig.

Disa × Luna.—*Journ. Hort.*, 1902, xliv., p. 485, with fig.

Lælia × Edward VII.—*Gard. Chron.*, 1902, xxxi., p. 413, with suppl. fig.

Lælio-cattleya × Duchnesnei.—*Lindenia*: t. 777.

L.-c. × Queen Alexandra.—*Gard. Chron.*, 1902, xxxi., p. 413, with suppl. fig.

Odontoglossum × Adrianæ Cooksonæ.—*Gard. Chron.*, xxxi., p. 389, fig 137. Var. Sybil.—*Journ. Hort.*, 1902, xliv. p, 529, with fig.

O. crispum ardentissimum.—*Journ. Hort.*, 1902, xliv., p. 505, with fig.; *Gard. Mag.*, 1902, p. 349, with fig. Var. Lady Jane.—*Gard. Mag.*, 1902, p. 347, with fig.; *Garden*, 1902, lxi., p. 411, with fig. Var. memoria Bulli.—*Lindenia*, t. 780.

O. × Edward Rex.—*Gard. Mag.*, 1902, p. 351, with fig.

O. × Edwardus Rex.—*Gard. Chron.*, 1902, xxxi., pp. 413, 414, fig. 152.

O. grande Pittianum.—*Gartenflora*, 1902, p. 225, t. 1498.

O. × sceptro-crispum, L. Lind.—*Lindenia*, t. 773.

O. × Wilckeanum imperatorium.—*Gard. Mag.*, 1902, p. 349, with fig.

Oncidium Forbesii atratum.—*Lindenia*, t. 779.

Orchis longibracteata.—*Garden*, 1902, lxi., p. 395, with fig.

Vanda Kimballiana.—*Gard. Chron.*, 1902, xxxi., p. 376, with suppl. fig.

CORRESPONDENCE.

(*Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.*)

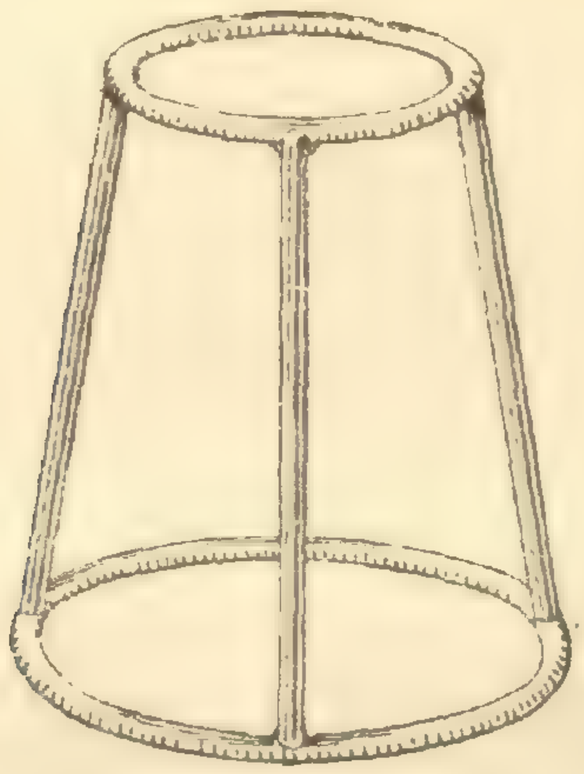
J. H. There is some mistake. The inflorence sent as Epilælia × Charlesworthii seems to be simply a form of Lælia cinnabarina, and you say the plant resembles this in every way, whereas it is the peculiarity of this hybrid to have flowers Epidendrum-like in structure, and also reed like leafy stems, approaching those of the pollen parent, Epidendrum radicans. The other plant is Hartwegia purpurea.

C. C. M. Gongora bufonia or a closely allied species, with flower almost uniformly reddish-maroon.

K.P., Germany. The Odontoglossum leaves arrived in a rather dried condition, through being wrongly addressed, but we fail to find traces of fungi. The mischief seems general, and we should suggest a deeper cause. Are the roots and compost in good condition? As the plants were potted in pure beech leaf-mould at the last re-potting season it is important to ascertain the exact cause of the mischief, if possible.

Photographs received with thanks. J.G., F.K., G.C., H.A., R.G.T., J.H.

MURRAY'S PATENT ORCHID STAND.



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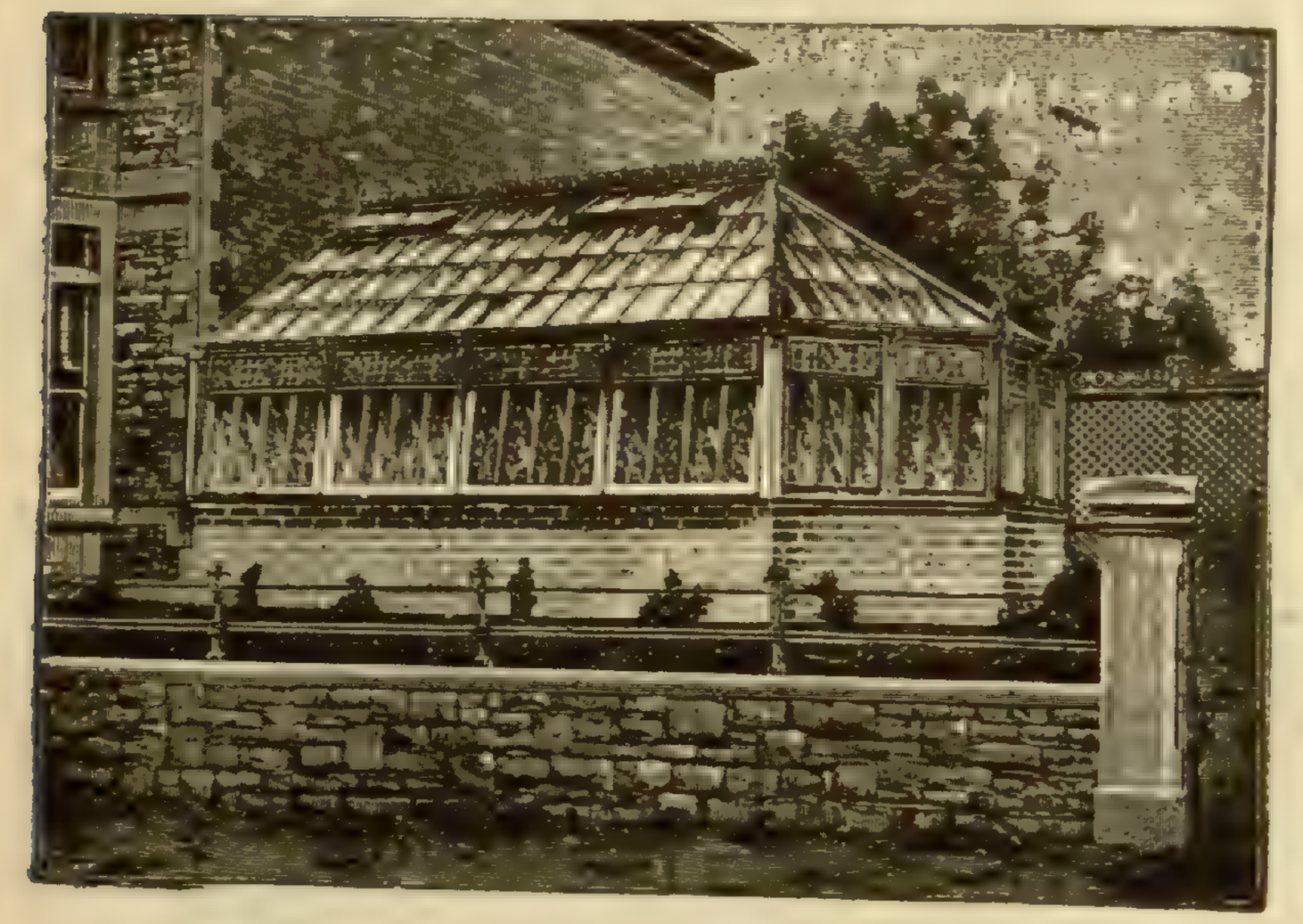

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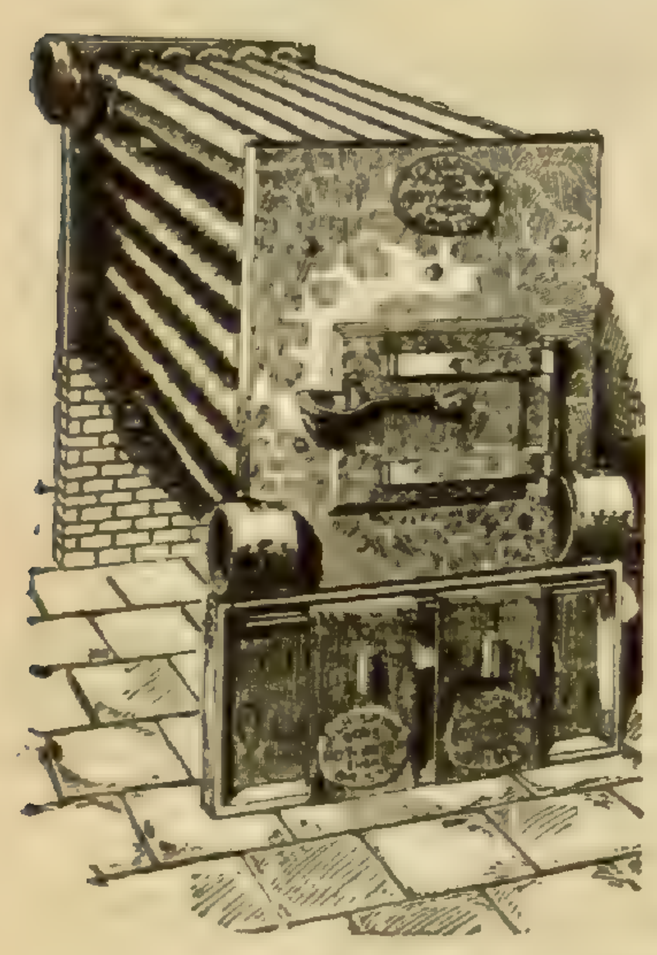

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *AUGUST*, 1902. [No. 116.

DIES ORCHIDIANI.

I HAVE been asked what I think of the case Low *versus* Appleton, reported so fully last month. Is Cypripedium insigne Harefield Hall variety permanent? Does its essential character vanish if forced in heat? If nobody acted improperly, and no one made a mistake, where did the error originate? The question is too big to answer. It seems to resemble the noted case of Cattleya Aclandiæ alba. The plant was purchased under a certain name, and sold again without flowering, and there seems to have been a warranty that it was correct, or that if it flowered at all it would flower correct—the legal talent does not seem to have decided what would happen if it failed to flower—and in the end it did not flower correct, or proved to be something else. The moral that I should draw from the case would be, don't sell a plant on the warranty of someone else, unless you have independent reason for knowing it to be correct. The legal decision seems to have been that the plant which Messrs. Low flowered never was C. insigne Harefield Hall var. The question then is who gave the erroneous name? The matter should be cleared up, but in the case of Cattleya Aclandiæ alba it never was. Will history repeat itself?

The Certificate question has cropped up again in a new form. M. A. A. Peeters writes in a recent issue of the *Gardeners' Chronicle* (p. 7):—"In the interests of those who submit hybrid plants to the Royal Horticultural Society for certificate, and of Orchid hybridists in particular, it seems desirable that there should be an understanding of the basis upon which certificates are given or withheld. I refer specially to my plant of Lælio-cattleya × Martineti var. Coronation, which I exhibited at the recent Rose Show, when, to my surprise, the certificate was withheld, because, in the case of one of the parents (Lælia tenebrosa) there was, in the opinion of some of the Orchid Committee, no trace of this species. This appears to be an unsatisfactory ruling, and it leads to the inquiry as to what happens or will happen when secondary, and worse still when tertiary hybrids are submitted. Can it be affirmed that in such hybrids distinct traces of each

parent are always to be seen? If they are not, then all such plants must be disqualified by this ruling, which is a *reductio ad absurdum*."

M. Peeters further remarks that the action of the Committee is an attack, either upon his personal honour or upon his methods as a trading firm, but I do not think that the facts warrant such an assumption, and I note that "C. T. D." in a later issue (p. 22) describes it as "utterly erroneous." Whether the plant in question is one of those curious hybrids in which the characters of one parent are invisible, or "recessive," in Mendelian language, or whether it is a stray seedling—and the most careful hybridist cannot always avoid such—it would be difficult to say, but there is no necessity for the extreme view taken by M. Peeters.

The discussion seems to open up a wider question, and "C. T. D." remarks that even if the Orchid in question was disqualified, owing to a doubt of its hybrid character being correctly indicated by the name attached, the Committee was within its rights in not granting the award. The object of hybridising is to obtain new and improved types, and it matters little what their origin is so far as the Committee's opinion of their beauty is concerned, and he thinks that the "first principles" which should guide the Committee should apply rather to perfection of form, habit, and colour, than to mere "curio" combinations arrived at by hybridisation. He also remarks that "one of the very first principles must always be to aim at correct names, so that the records kept of the awards given may be as free as possible from confusion."

I like that last sentence, but I wish it was easier to carry out in practice. I observe at page 219 of your last issue that a new hybrid is described under the name of Lælio-cattleya × Hodgkinsonæ, which is said to have received a First-class Certificate from the Manchester Orchid Society on June 5th; but at page 215 what is evidently the same plant is called L.-c. × Phœbe superba. The *Gardeners' Chronicle* for July 12th (p. 25) also calls it "L.-c. × Phœbe superba, a distinct improvement on the hybrids previously seen here of this class." But L.-c. × Phœbe is a form of L.-c. × Hippolyta, both being hybrids between Lælia cinnabarina and Cattleya Mossiæ—as a matter of fact it was derived from the reverse cross—and L.-c. × Hodgkinsonæ has L. harpophylla for one parent, which is sufficient to stamp the two as distinct. Whether the parentage was then not clearly known—and being a stray seedling this is possible—or whether the Committee gave or changed the name is not clear, but no doubt they will now amend the record, and thus prevent further confusion.

I see that we have another note about the Scarlet Cymbidium. "W." in the *Journal of Horticulture* says that "for many years past there has been talk in Orchid circles of a scarlet-lipped Cymbidium, which grew somewhere in the swamps of Madagascar, and which had cost the lives of more than one intrepid collector in search of it." "Scarlet-lipped," forsooth. Why, the whole thing might have been scarlet, leaves and all, for anything to the contrary that the story contained:—"Imagine a scarlet Cymbidium! That such a thing existed has been known for years, and three have gone in search of it; two died, and the third has been terribly ill since his return to Europe—but he won the treasure, which we shall behold in good time." Well, we did behold it, and lo, it was green and black. And about those two collectors? Well, details were not given, though we learnt how M. Leon Humblot dined at Tamatave with his brother and six compatriots, and within twelve months he was the only survivor. One was soaked with paraffin and burnt. The fate of the others we must imagine, and we have since heard something about the moving perils which haunt the collector of Orchids in Madagascar. And this brings me back to the scarlet Cymbidium, which Humblot himself seems to think was communicated to Reichenbach, and was none other than our old friend Eulophiella Elisabethæ. So we are left in doubt, and I begin to think that there will be some excitement when the Reichenbachian Herbarium is opened.

When discussing the question of Odontoglossum × ardentissimum (or crispum ardentissimum) last month I remarked that the records were unsatisfactory in the extreme, and now I see that at page 209 we have its complete history, as well as a fine photographic illustration, and a new name to boot. Very little seems to have been heard about O. × armainvillierense, but the records claim it as a hybrid between O. crispum and O. Pescatorei, and as M. Vuylsteke's four hybrids are said to have a similar origin, the rules require them to rank as varieties of it. It is extremely satisfactory to have the matter cleared up, even if it necessitates an amendment of the records, and violates the alleged sanctity of a few certificated names.

The other two figures are very interesting. O. crispum Lady Jane is a remarkable and very beautiful variety, whose permanence is quite assured, and if Odontoglossums can always be grown in leaf-mould as in the specimen figured on page 201 no one need hesitate to give it a trial. It is very curious to find such a diversity of opinion as to the value of the new compost.

ARGUS.

MASDEVALLIA XIPHERES AND ITS ALLIES.

It is interesting to note that another species of the remarkable M. muscosa group has appeared in cultivation, namely M. Xipheres, which was described by Reichenbach, in 1877 (*Linnæa*, xli, p. 12), from dried specimens collected by Roezl. It has been re-introduced by Messrs. F. Sander & Co., and seems to have passed for M. muscosa till the two flowered together, when the marked differences between them were noticed. Before pointing out its characters it may be as well to outline the history of the group. Four species are now known. The first was M. Echidna, described by Reichenbach in 1855 (*Bonplandia*, iii, p. 69), from dried specimens collected by Wagener at Alto de S. Francisco, Columbia, at 6000 feet altitude. It was said to have the peduncles densely covered with subulate-linear papillæ, and the ovary bristly. It is still known only from the description. In 1875 a second species was described, from dried specimens collected by Shuttleworth, in New Grenada, and sent to Mr. Bull, namely M. muscosa (Rchb. f. in *Gard. Chron.*, 1875, iii, p. 460). It was described as "a very queer little thing, reminding one of a Moss Rose by its stiff-haired peduncle and ovary." In 1877 two others were added by Reichenbach, from dried specimens collected by Roezl, namely M. erinacea (*Linnæa*, xli, p. 11), and the one mentioned above, and at this time the section Echidnæ was established for their reception, though its characters were not indicated. M. erinacea appeared in cultivation in 1881, in the establishment of Mr. W. Bull, at Chelsea, and was noted by Reichenbach (*Gard. Chron.*, 1881, xv. p. 104), though it seems to have been subsequently lost. M. muscosa afterwards appeared, flowering at Kew in May, 1887, when the sensitive character of its lip was discovered. Mr. Bean, then foreman of the Orchid department, was the first to notice something remarkable about the flowers, the lips being sometimes up and sometimes down, hence he suspected that they were sensitive, a surmise which proved correct on being tested (*Gard. Chron.*, 1887, i, p. 836). The question was further worked out in detail by Prof. F. W. Oliver (*Ann. of Bot.*, i, pp. 235-253, t. 12). The species has since been figured in the *Botanical Magazine* (t. 7664).

M. Xipheres is the third species of the group which has appeared in cultivation, and Messrs. Sander do not appear to know its origin, for they remark that they have two plants under the name of M. muscosa, and that the one with brown flowers is much more vigorous than the other. It may, however, be remarked that a dried specimen from one of their collectors, which was sent to Kew by Messrs. Sander in 1890, belongs to the same species, and on comparing the materials with Reichenbach's description I have identified it as above. A leaf and scape of each species are sent. The leaf of M. Xipheres measures 4 inches long, by 8 lines broad, and is wholly

green, while that of M. muscosa is about half the size, and has the petiole dull purple. In the latter the scapes are single-flowered, but in the former several flowers appear in succession, up to eight or nine in one of the dried specimens. The flowers are also rather larger, and, instead of being light-yellow, are greenish brown, with traces of darker spots, and stouter purple-brown tails. The lip is very similar to the perianth in colouring, but agrees with M. muscosa in structure, except that the crest is more than twice as high, and the hairs on the front lobe more prominent. The petals are red-purple with greenish tips, instead of yellow, and the nerves of the dorsal sepal are red-purple inside. In the hairy peduncles they are remarkably alike.

M. erinacea has also the flowers racemose, but, according to Reichenbach, the flower "has little prickles at the margin of the sepals and on the middle nerve, besides different colours." M. Echidna is described in too general terms to say just what its differences are.

It may be added that Reichenbach originally described M. muscosa as "pedunculo subbifloro, floribus heterochronicis," but as he afterwards confirmed the determation of M. muscosa, from a flower sent to him, we may infer that the plant now in gardens is correctly named. It is believed not to be part of the original stock (it is not clear whether Mr. Bull ever had living plants), for it was only identified from description when a plant of it flowered at Kew, and it was afterwards found that this came from Messrs. Hugh Low & Co., who had more plants of it.

It was not found possible to experiment with a single, slightly withered flower of M. Xipheres, but from the similar structure and organisation it is highly probable that it also has a sensitive lip, and indeed the two other species of the group. This character, as observed in M. muscosa, may be briefly described as follows:—When the flower opens, the triangular blade of the lip is folded against the apex of the petals, but subsequently turns outwards on a hinge, then appearing to hang beneath the flower. This exposes a yellow ridge on the lip, which is endowed with irritability, and when this is touched with a hair, or when a small fly settles on it, the lip immediately begins to fold up, at first somewhat slowly, and then suddenly, in the latter case closing the insect as it were in a little box. But there is then a small opening between the arched tip of the petals and the anther case, and in crawling through this the insect would inevitably bring away the pollinia, and on subsequently visiting another flower, where the process would be repeated, the pollinia would be left upon the stigma, and fertilisation effected. The effect of fertilisation upon the action of the lip is not known, but failing this the lip unfolds again after a lapse of about twenty minutes, or sometimes more, and is ready to repeat the process. It may also be added that the lip folds up again at night. The mossy

peduncles are evidently intended to prevent undesirable insects from crawling up to the flowers, and they offer a very effective obstacle, for ants have been observed trying to climb up, but without success. It would be interesting to know by what particular insect the flowers are fertilised in a wild state.

Consul F. C. Lehmann states (*Woolw. Masdeval.*, p. 102) that M. muscosa has a very wide and irregular geographical distribution throughout Ecuador and Columbia, extending fully six hundred miles from north to south, and ranging vertically from 1,800 to 2,300 metres (5,850 to 7,475 feet), growing most frequently upon trunks and thick branches of trees, in damp mountain forests, where the absence of underwood allows a perpetual circulation of air. Numerous localities are given, and he adds that in many parts of Ecuador it also grows upon volcanic rocks and walls of lava, and produces the largest and most brightly coloured flowers, the flowering season being in February and March, while in Columbia it flowers from September to December. He adds that in spite of its extensive geographical distribution it shows little variation, either in size or colour. No mention is made of the other three species, so that it is uncertain if they are known to Consul Lehmann.

It is a very remarkable little group, and readily distinguished from its allies by the peculiar structure and economy of the flowers.

R. A. ROLFE.

ODONTOGLOSSUM CULTURE IN SCOTLAND.

ODONTOGLOSSUM crispum is splendidly grown in the collection of C.L. Wood, Esq., Freeland, Forgandenny, N.B. In sending some sample flowers to the *Gardeners' Chronicle*, "each measuring about four inches across," the gardener, Mr. William Sharp, remarks:—The stronger the plants are grown, the larger are the flowers; but I am inclined to think that after a certain point is reached, the increase of size is at the expense of the shape of the flower. I have found that when a plant was small, and bore but a few flowers on a spike, the shape has been perfect, but that when the same plant has been grown strongly for a few years, although the flowers have been much larger, the extra length of the petal has not been accompanied by proportionate breadth. The Odontoglossums grow very satisfactorily. Our largest crispum has ten spikes; others have from eight downwards. The plant from which the largest bloom sent was cut had fifteen blooms on a spike. The greatest number of spikes I have had on one specimen is thirteen. The largest number of blooms I ever had on a crispum was sixty-four; on a Pescatorei one hundred and thirty-six.—*Gard. Chron.*, 1902, xxxii, p. 32.

ORCHIDS IN LEAF-MOULD IN JAPAN.

MR. THEO. ECKHARDT, in a recent issue of the *Florists' Exchange*, makes an interesting contribution to the question of growing Orchids in leaf-mould, the substance of which we reproduce here:—I observe in recent numbers that notes on the cultivation of Orchids in leaf-mould are freely compared by the experts of America. I have for years followed the development of this innovation, and have given details of my observations in previous numbers. It may be of interest to add to what has been said on the subject the experience in that method of Orchid growing in the Imperial Gardens at Tokio.

As with everything else there, Orchids are in fine form, under the care of the able director, Mr. Fucuba, and as that gentleman is of the French school, he has, of course, carefully studied this new method, some of his trials have extended over three or four years, and some are still new. The results are, in the main, as follow:—

For Cattleyas leaf-mould is accepted altogether; the experience, and subsequent general adoption of this new potting medium has given grand results, and if there is any difference at all, C. labiata seems to revel in that material.

Dendrobiums like it as well. A notable instance is the D. superbum. This Philippine Orchid would formerly dwindle away in the course of three or four seasons after importing, but grown in leaf-mould the results are different—the bulbs increasing in size, and a comparison of plants, hanging side by side, showing such a marked difference in the root and bulb system that there cannot be any question about the value of leaf-mould here.

Oncidiums show the same predisposition to gradually deteriorate after they are taken away from their natural homes, and this is most obvious with such kinds as O. sarcodes, O. tigrinum, &c. Leaf-mould has again reversed the conditions, and these Oncidiums prosper and increase in size every year.

An exception in the results obtained from the use of leaf-mould is to be recorded in the case of Cypripediums; these are not at all suited with the leaf-mould, and after careful trials during two seasons it has been dropped.

Now, the argument that the leaf-mould of Europe, and, in this case, of Japan, is different in its composition from that of America, can hardly stand. The natural leaf-mould of the Belgians, as it comes (as surface rakings) from the woods, and the artificial compost which the French as a rule prepare on their own places; and, again, the chestnut mould of the Italian growers, which I have watched, are all different as far as the variety of their leaves is concerned. Again, the Japanese leaves are grown in very different soils, and the varieties are also quite different. If all these kinds

will answer, why should the American be the only exception? Again, as the leaves are used in a very advanced stage of decomposition, their chemical composition, as far as all practical purposes are concerned, is identical.

There was the same strong prejudice against the leaf-mould in Europe as is shown to exist in America. Of course there are many patent reasons for this prejudice, not the least of which is that the fern roots have given magnificent results; also, the improvement observed as resulting from leaf-mould is not one of the flower so much as an improvement in the general constitution of the plant. In some extreme cases it even seems that Odontoglossums, while making tremendous bulbs, did not produce the quality of flowers that might have been expected.

It is quite safe to predict that leaf-mould will be adopted for many Orchids in the course of time in America; and careful trials can only be recommended. The work should be done on a small scale, and, preferably, with those Orchids that so far fail to thrive satisfactorily. There is no denying the expert knowledge of those who have been kind enough to give the results of their experience in your columns; but then it is a fact that even the most cynical have been convinced when they saw the grand results secured from leaf-mould. Mention has been made of Dendrobium Phalænopsis; certainly whoever has seen these plants at Sander's and at A. Peeters', at Brussels, cannot but be convinced of the efficacy of this material.

ANGULOA CLOWESII.

SOME notable examples of good culture from the collection of Major Joicey, at Sunningdale Park, have appeared at meetings of the R.H.S., and now an illustration of a noble specimen of Anguloa Clowesii from this collection, reproduced from a photograph, has appeared in the *Gardeners' Magazine* (page 460), whence the following is extracted:—"The plant is now in a 14 inch pot, and produced 30 spikes and 33 flowers, all of splendid form, rich colour, and delicious fragrance. Mr. Thorne expresses the determination to grow the plant on until it produces 50 flowers, when he will place it before the Royal Horticultural Society at the Drill Hall—or will it be at the new hall? As long ago as June 12, 1894, Mr. Thorne received, by the unanimous vote of the Orchid Committee of the Royal Horticultural Society, a First-class Certificate for this self-same plant, at which time it was in a 6-inch pot. Since then its development to its present most excellent stage has been uninterrupted, and it reflects the utmost credit upon its grower, whose only fault regarding it is that he did not stage it at the Temple Show for all the world to see and admire."

CATTLEYA MENDELII.

LARGE specimens of Cattleya Mendelii are seldom met with, but the accompanying illustration represents a noble example from the collection of R. Brooman White, Esq., of Arddarroch. The photograph was taken in 1893, and at that time the plant carried forty-two expanded flowers. The plant, we believe, was collected by Mr. Albert Millican, who was sent out by Mr. White, in search of this beautiful Cattleya, among other things, and who in 1891 published a very interesting account of his experiences under the title, *Travels and Adventures of an Orchid Hunter*. This book contains a very graphic account of the search for Cattleya Mendelii, from which we may make a few extracts. On arriving at Bucamaranga, the traveller

FIG. 24. CATTLEYA MENDELII.

remarks (p. 110) :—"As up to now I had not even seen a single plant of value, I was delighted to learn that the early botanists had found the gorgeous Cattleya Mendelii growing around here in profusion. Now, however, through the immense exportation of these plants, not a single one is to be found within many days' journey from here on mules."

From Bucamaranga the traveller proceeded up the valley of La Florida to the town of Pie de Cuesta at about 5,500 feet altitude—a place with "something like twelve hours day and twelve hours night throughout the year, and a mild balmy air which is never oppressively hot or disagreeably

cold"—and thence along the fertile banks of a stream for some miles, and after an ascent of 1,000 feet he reached the extensive plain of La Mesa de los Santos. "One side of La Mesa de los Santos," he remarks (pp. 113, 114), "is bounded by immense precipices, some of them over 200 feet in height. . . . . On the edges of these precipices, where the eagle and the condor make their home, the lovely Cattleya Mendelii has grown in profusion since the memory of man. Even when the first plant-hunter arrived, these dizzy heights offered no obstacle to his determination to plunder. Natives were let down by means of ropes, and by the same ropes the plants were hauled up in thousands, and when I visited the place all that I could see of its former beauty and wealth of plants was an occasional straggling bulb hung as if in mid-air on some point only accessible to the eagles. I left the place impressed with the magnificence of the scenery, but disappointed in my search for plants."

The traveller then proceeded over the plain to the small village of Los Santos, on the edge of a declivity of about 1,000 feet, the turbulent little river Subi running in the valley below. "I had been informed," he remarks (p. 117), "that Cattleya Mendelii was still to be found in quantities on the eastern range of the Andes, so after leaving the precipices of Subi I turned off in the direction of a small village called Curiti, at the foot of the range of mountains so celebrated for Orchids. . . . . The vegetation is somewhat subtropical, lovely ferns and Selaginellas being very luxuriant, as well as the feathery bamboos, but with an absence of the fine rich timber trees and towering palms of the lower grounds. . . . . I had not far to go before I was rewarded with the object of my search, in the myriads of Bromeliaceæ and Orchids which literally cover the short stunted trees, and the bare points of rocks, where scarcely an inch of soil is to be found. The most magnificent sight for even the most stoical observer is the immense clumps of Cattleya Mendelii, each new bulb bearing four or five of its gorgeous rose-coloured flowers, many of them growing in the full sun or with very little shade, and possessing a glowing colour which is very difficult to get in the stuffy hothouses where the plants are cultivated. Some of these plants, considering their size and the slowness of growth, must have taken years to develop, for I have taken plants from the trees with five-hundred bulbs and as many as one-hundred spikes of flowers, which to a lover of Orchids is worth travelling from Europe to see. Apart from the few extraordinary specimens, the Orchids, as a rule, are very much crowded and mixed up with other vegetation." Mr. Millican gives an illustration, reproduced from a photograph which he took, of one of these trees, and remarks:—"The higher branches are covered with long white lichen; a little lower is an immense clump of Tillandsias, while the branch on the right hand is inhabited by some Oncidiums. The next plant lower

down is a nice piece of Cattleya Mendelii. The whole of the mountains at the time of my visit were crowded with the famous parasite. Like most of my predecessors I was tempted to bear away a large quantity of the coveted plants, besides exploring the mountains and enjoying much of their beauty."

It is very interesting to have such a graphic account of the conditions under which this beautiful plant grows in a wild state, and we can only hope that it will long continue to adorn its native hills with such splendour. If collectors could be induced to leave sufficient plants to keep up the supply, there should be no reason to fear its extermination, for nature has provided it with adequate means of increase where conditions are favourable.

We may add that it is not alone in European hothouses where the plant is exhibited, for Mr. Millican, speaking of a square in the town of Bucamaranga (p. 107), alludes to the well-to-do Colombian as literally dining "under the shade of orange trees laden with blossom and fruit. Huge Gardenias, whose crowns of waxen flowers fill the air with their exquisite perfume, with large masses of the lovely Orchid Cattleya Mendelii give to the whole group a masterly finish of colour."

C. Mendelii was first introduced by Messrs. Hugh Low & Co., and shortly afterwards by Messrs. Backhouse, of York, and was named in compliment to Sam Mendel, Esq., of Manley Hall, Manchester. It flowered for the first time in Europe, in June of the following year, in the collection of J. Day, Esq., of Tottenham.

ODONTOGLOSSUM CRISPUM TWIN-FLOWERED.

A CURIOUS twin flower of Odontoglossum crispum—the variety known as Mrs. Barkley Levett—is sent from the collection of William Bass, Esq., Byrkley, Burton-on-Trent, by Mr. Nisbet. There are five sepals, three petals, two lips placed side by side, and the two columns are confluent to the apex, which together give the flower quite a double appearance. The sepals are slighly tinged with rose, and bear several more or less confluent red brown spots; the petals unspotted; and the lip bears a chestnut blotch in front of the crest, and numerous small marginal dots. The spike is said to have borne nineteen blooms, all the rest being normal, and the plant which produced it received a Cultural Certificate at Manchester last year. The sender remarks:—"We do not grow our Odontoglossums in leaf-soil, but in polypodium fibre and moss. I do not think the blooms get the substance in leaf-soil that they do in polypodium fibre. We gained several Cultural Certificates at Manchester last year, and a Silver Medal for a group on June 5th of this year. The flower sent is finely developed and measures $3\frac{3}{4}$ inches across its broadest diameter.

HYBRID ORCHIDS AND MENDEL'S "LAW OF INHERITANCE."

"IT is quite true that, according to Mendel's law, a plant may be a true hybrid, although it presents only the 'dominant' parental features, so that all signs of the other, or 'recessive' parent are invisible."

This remark appears in a recent discussion about a hybrid Orchid, and we have been asked how far Mendel's so-called "Law of Inheritance" is in accord with the facts observed among hybrids generally. In the first place we must deprecate the tendency to magnify into a so-called "Law" what is at best but a provisional hypothesis, framed to account for certain phenomena observed among one class of plants, which, even there, according to the observations of others, does not always apply, and which completely breaks down when applied to many different groups.

It is not certain that the plants which Mendel worked with are hybrids at all in the true sense, it being extremely probable that they are only races of a single species (Pisum sativum). Be this as it may, the essence of Mendel's "Law," as we understand it, is that although a hybrid or cross-bred presents a combination of characters derived from two diverse parents, this combined character does not extend to the ultimate germ-cells, which remain pure, and either transmit the one character or the other to the offspring, not both. Mendel's deductions were that when two races of peas were crossed together, the offspring will exhibit the dominant characters of the parents almost or quite unaltered, while other characters appear to be missing, being present in such a slight degree as to pass unnoticed, though the fact of their reappearance in a subsequent generation shows them to have been latent; hence they are termed "recessive." This has been termed the Law of Dominance. His second deductions were that if these hybrids were self-fertilised, all the possible combinations of the ancestral race-characters will appear in the second generation with equal frequency, and these combinations will obey the Law of Dominance, so that characters intermediate between those of the ancestral races will not occur. This has been termed the Law of Segregation. The principle is therefore deduced that in hybrids the ovules and pollen-grains retain their originality throughout, the eventual combination of characters being strictly confined to the number of combinations which may be possible between the original ones, these retaining their integrity throughout all transmissions.

There are, however, large numbers of hybrids to which the remarks do not apply. Hybrids may be divided into three groups, according to the way in which they combine the parental characters. The great majority may be termed intermediate, the parental characters being

so intimately blended that it is not possible to resolve them into separate elements. This has been termed "Blended Inheritance." A second class consists of hybrids in which the characters are divisible into regions, in some of which are grouped the characters of one parent, almost unaltered, while the remainder bear a similar relation to the other parent. This has been termed "Particulate (or Mosaic) Inheritance." A third group consists of those which closely or altogether resemble one parent, while the other appears to be entirely or nearly unrepresented. This has been termed "Alternative Inheritance." But these groups are not as strictly definable as the above would indicate, for they grade into each other, and are connected by various intermediate stages.

How far intermediate hybrids are liable to revert to their parental characters is very vaguely known, for in some cases, where it is thought to have been observed, there are strong grounds for suspecting that the reversion is due to intercrossing with one of the original parents. And at all events there are various intermediate hybrids which are known to have remained true for numerous successive generations, and the failure of these plants to conform to the Mendelian conception shows on how slender a basis of fact the hypothesis stands.

There are no hybrid Orchids, as far as we know, in which careful experiments have been made to test the question of reversion, and it is doubtful how far the few records on the subject are reliable. But let us take a supposed case. Phragmipedilum (Cypripedium) × Sedeni is a hybrid between the markedly distinct species P. Schlimii and P. longifolium (the result being identical whichever is used as the seed parent). It possesses the most unmistakable combination of the parental characters, but according to the Mendelian "law" the ovules and pollen grains ought to retain their original characters, and if the flowers were self-fertilised the results should be comparable with those obtained by Mendel. We are not aware that the experiment has been tried, but we do know the result of again crossing the hybrid with both its parents. P. × Sedeni re-crossed with the P. longifolium parent (it is immaterial for our purpose which was the mother) yielded P. × calurum, in which a considerable return towards the characters of P. longifolium is seen, and re-crossed with P. Schlimii yielded P. × cardinale, showing a similar approximation to the P. Schlimii parent. The secondary hybrids are as fairly intermediate as the primary one, and all possess intimately blended characters, and yet, according to the Mendelian conception, no new factor was introduced, and the ultimate germ cells of P. × Sedeni should be in the same pure condition as in the original parents.

The fact is, many characters cannot be classed under the headings of dominant and recessive, and the dominant characters are not always the same. An example from Mendel will give a clearer idea of his argument.

He found that when peas having yellow and green cotyledons were crossed, the yellow colour was dominant and the green recessive, and when the hybrids were self-fertilised the resulting seeds were either yellow or green, but the former were three times as numerous as the latter. Now fertilisation consists of the union of two cells of opposite sexes (called gametes before conjugation), and the gamete of either sex is equally capable of transmitting a character. If therefore a male and female gamete of the pure yellow character united the offspring would be yellow, and if green with green the offspring would be green. But if a yellow male gamete united with a green female, and a green male with a yellow female, the result in both cases, under the Law of Dominance, would be a yellow seed (yellow being dominant, and green recessive), hence the proportions of three yellow seeds to one green. The union of unlike gametes (green with yellow) alone yielded hybrids (those of like gametes reverting to the pure parental character), and these again self-fertilised repeated the process in the same proportions, yellow with green alone remaining hybrid, the rest reverting; and so on to subsequent generations. But the same plant may at the same time exhibit dominant and recessive characters in opposite pairs of several other kinds, hence there is a degree of complexity which can hardly be followed up by experiment, the results becoming unmanageable.

Weldon, however, argues that the flaw in Mendel's work consists in neglect of the ancestry of the races with which he worked, and the tendency to regard this offspring as resembling their individual parents instead of the race to which they belong, and shows that races having a different ancestry behave differently. He also shows a scale of intermediates in (1) colour, and (2) shape, (another character which Mendel dealt with). By the way, it is curious that Mendel had no intermediates, but he seems to have sorted everything into either yellow or green, though he admits having at first sorted some into the wrong division. Weldon also argues that Alternative Inheritance alone may produce something like Mendel's Law of Segregation, but not comparable with his Law of Dominance.

The conceptions of "unit-characters," put forward to explain the numerical proportions in which the dominant and recessive characters are said to appear in successive generations, is certainly ingenious, and recalls the one put forward to account for the supposed fact that acquired characters—those which first appear in the lifetime of the individual because of the environment—are never reproduced. The theory is that there is a germ-plasm, from which new individuals are produced, which is unaffected by the environment, and consequently remains pure. But if acquired characters were never transmitted—if every individual reproduced itself absolutely pure and uncontaminated—no evolution would be possible. There is now a sort of modification of the theory, that if the effect of the

environment be continued for two or more generations they may become hereditary, but, as Bailey very well remarks, the tendency towards fixity, if it exists at all, undoubtedly originates at the very time that the variation itself originates (it may be said to be due to the same force), and it is sophistry to assume that the form appears at one time and the tendency towards permanence at another.

It is quite evident that organisms are not made up of particles which combine in definite proportions, like molecules are formed from their constituent atoms in chemistry, and the conception of unit-characters which reproduce themselves absolutely is difficult to realise. As for the validity of Mendel's so-called "Law" we cannot regard it as of general application to the facts already observed among hybrids.

GOODYERA NUDA.

ANOTHER of M. Warpur's Madagascar Orchids has flowered in the Kew collection, and I believe that it belongs to Goodyera nuda, Thouars, a species figured over eighty years ago (*Orch. Iles Afr.*, t. 29), but which is still very imperfectly known. The original figure is very rude, and the description altogether inadequate, while the habitat is given as Mauritius and Bourbon. A. Richard afterwards gave a description, with a figure of the flower (*Orch. Iles. Fr. et Bourb.*, p. 38, t. 6, fig. 3), but the details of the latter are so erroneous that its authenticity has been doubted. Blume made of it a new genus under the name of Gymnochilus nudus (*Coll. Orch.* pp. 107, 108, t. 32, fig. 1), at the same time describing a second species from Madagascar as G. recurvus (*l.c.*, p. 109, t. 32, fig. 2). The characters on which he relied for generic separation were the regular flowers—the lip being petal-like—and some differences in the column, but Bentham afterwards remarked as to this point :—"Gymnochilus . . . is scarcely distinct from Goodyera except in the labellum being uniform with the petals," and, after commenting on other genera where an abnormal peloriate condition was known, concluded by saying that the matter required further investigation (*Journ. Linn. Soc.* xviii, p. 346). We now come to recent materials. Humblot collected in Madagascar a plant which chiefly differs from the Mauritian one in having irregular flowers, the spike rather more lax, and the size rather larger (Blume's figure of G. recurvus is rather smaller than the Mauritian plant). Then M. Warpur collected flowerless specimens, but one of the living plants has now bloomed, and also has irregular flowers, which to my mind confirms Bentham's idea that Gymnochilus is only a peloriate state of Goodyera. There remains a slight doubt whether all belong to a single species, the original G. nuda. This seems probable, but a more complete set of specimens is necessary to settle

the point. It may be added that M. Warpur's plant has variegated leaves, comparable with those of Cystorchis variegata, the nerves being brownish green on a paler ground, but more uniformly dark when young, and the flowers whitish, with the petals and mid-vein of the sepals light brown, and barely two lines long. The differences observed in the column of Gymnochilus are common to regular peloriate states of other Orchids, and the genus must evidently be abolished.

R. A. ROLFE.

ODONTOGLOSSUM × ARMAINVILLIERENSE VAR. ARDENTISSIMUM.

WE have some further notes to make respecting the name of this handsome Odontoglossum. M. Chas. Vuylsteke writes in high appreciation of the photographic illustration given at page 209 of our last issue, but at the same time he thinks that the name must be changed, for he adds:—"Connoisseurs tell me that it has no relation with O. × armainvillierense." M. Vuylsteke does not appear to have seen that plant himself, and unfortunately we are in the same fix, and have to rely upon the published note, which, however, if regrettably short, is explicit as to parentage. We hope M. Jacob will favour us with a bloom next season.

The *Gardeners' Chronicle* has also reproduced a drawing of the plant, under the name of Odontoglossum × ardentissimum (p. 50, fig. 19), which differs considerably from the photographic illustration, whose accuracy cannot be gainsaid. They allude to the plant as a "showy hybrid between a spotted form of O. Pescatorei and, it is said, the heavily blotched O. crispum Franz Masereel." And speaking of the awards made to this and three other forms at the last Temple Show, they remark:—"Unfortunately, by a misunderstanding, the plants were taken for forms of Odontoglossum crispum, and were at the same time so recorded; but when the true story of their production was known, it was decided by the Orchid Committee of the Royal Horticultural Society to adopt the name of Odontoglossum × ardentissimum as the primary name of the set, and to include all others of the same class under it." They thus appear to have totally overlooked O. × armainvillierense, but should the record of that plant prove correct the name will require further amendment.

It is unfortunate that there should be such an amount of uncertainty as to the correct name of this beautiful plant. Of course O. × armainvillierense might be very different in appearance from the one under discussion, and yet be derived from the same two species, for M. Vuylsteke himself speaks of the great variation among his batch of seedlings (*supra*, p. 220). We hope to see the question cleared up.

PAPHIOPEDILUM × VENETIA.

A FLOWER and leaf of an extremely fine hybrid raised from Paphiopedilum × Morganiæ burfordiense and P. Lawrenceanum is sent from the collection of H. J. Ross, Esq., Poggio Gherardo, Florence, Italy; also a photograph

FIG. 25. PAPHIOPEDILUM × VENETIA.

of the plant, from which the annexed illustration has been prepared. The habit most resembles P. × Morganiæ (the stem is longer than shown, as

is explained below), but in the details of the flowers and leaves the characters of both parents are well represented. The dorsal sepal of the flower sent measures 2½ inches long by the same broad, but is somewhat reflexed at the sides, and the purple-brown lines are partially broken up into spots at the base, the ground colour being cream-white at the apex and base, and the remainder suffused with light purple. The petals are four inches long, yellowish white at the base, passing into brownish purple towards the apex, and handsomely spotted with purple-brown. The lip is two inches long, rather stout and light purple-brown in colour; and the staminode slightly concave at the sides, suffused with light purple, and reticulated with darker veins in the centre. The foliage is very handsome, being light yellowish green, with numerous broad dark green reticulated nerves. The plant is six years old, and is now flowering for the first time, producing a spike of three flowers. It is named by request after the daughter of Col. Cooper, of Markree Castle.

It will be noticed that the scape is not attached to the plant, and it should be mentioned that rather more than half the portion below the lowermost bract has been omitted. The photograph showed the whole plant, but, being too large for our pages, it was decided to divide the scape and bring it down, but through a slight misunderstanding the basal part has been omitted in making the block. This is mentioned to prevent misapprehension as to the height of the scape.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on July 8th, when a number of interesting Orchids were shown, though, as is usual during the summer months, there was a considerable falling off in the number of exhibitors, and the Orchid Committee only granted one Botanical Certificate and one Medal.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), sent a fine specimen of Gongora viridi-purpurea, bearing about twenty of its pendulous spikes, and was awarded a Botanical Certificate.

The Right Hon. Lord Rothschild, Tring Park (gr. Mr. Hill), sent Cattleya Gaskelliana alba, and Odontoglossum × Wilckeanum, Tring Park var., a large whitish form, regularly spotted with chocolate brown.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), sent a light coloured Cattleya × Germania (C. granulosa Schofieldiana × Hardyana).

Captain Holford, C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), showed Lælio-cattleya × Earl Grey (parentage unrecorded), having the

sepals and petals rosy lilac, and the lip of a rich maroon-claret tint, becoming reddish in the centre.

W. A. Bilney, Esq., Fir Grange, Weybridge, showed a good dark form of Cattleya × Hardyana, remarkable for showing the eye-like patches on the lip so characteristic in C. Warscewiczii, with very little of the yellow veining of C. Dowiana.

Sir William Marriott, Down House, Blandford (gr. Mr. Denny), sent the pretty Disa × Diores (D. × Veitchii × grandiflora).

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), showed the very curious Pleurothallis saurocephala.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, staged a choice little group, to which a Silver Banksian Medal was given. It contained some beautiful forms of Cattleya Mossiæ, including C. M. Reineckeana, C. M. Wageneri, and C. M. The Queen, a fine white, having a few delicate lavender markings in front of the yellow disc; also C. Mendelii Princess of Wales, Lælio-cattleya × Aphrodite, L.-c. × Schilleriana, and others.

Messrs. Sander & Sons, St. Albans, showed a choice little group, including Zygonisia × Rolfeana superba, a greatly improved form to that previously shown, a good dark Lælio-cattleya × Martineti (C. Mossiæ × L. tenebrosa), an interesting hybrid called L.-c. × conspicua (L. Digbyana × C. Leopoldi), having the greenish sepals and petals slightly tinged with rose, and bearing a few purple spots, and the front of the lip and column rich purple, two plants of the graceful Platyclinis filiformis, and a remarkably fine spike of Cypripedium Parishii bearing nine flowers.

Messrs. James Veitch & Sons, Royal Exotic Nursery, Chelsea, showed the very beautiful Cattleya × Hardyana Countess of Derby, and a plant called Lælio-cattleya × C. G. Roebling albida (L. purpurata × C. Gaskelliana), a beautiful form having white sepals and petals, and the front lobe of the lip dark rose-purple.

Messrs. William Bull & Sons, Chelsea, showed Cattleya Mendelii Souvenir de William Bull, a pretty blush white form with the lip nearly pure white.

Messrs. B. S. Williams & Son, Upper Holloway, showed Lælio-cattleya × Canhamiana Ed. André, Angræcum Scottianum, and some hybrid Cypripediums.

At the meeting held on July 22nd, there was a very small display of Orchids, no large groups being staged.

Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young), exhibited Cypripedium × Helen (Dayanum × Charlesworthii), and Cattleya × Wavriniana Wigan's variety (Warscewiczii × granulosa), the latter receiving a First-class Certificate. It is a very fine variety, the sepals

yellowish, tinged with rose, the broad petals rather darker, and the strongly three-lobed lip having the front lobe rose coloured, veined with purple, and the yellowish side lobes tinged with purple at the tip.

F. Simonds, Esq., Woodthorpe, Beckenham (gr. Mr. Day), received a Cultural Commendation for a fine plant of Grammangis Ellisii, bearing a raceme of twenty-five flowers.

W. C. Walker, Esq., Winchmore Hill (gr. Mr. Cragg), received a Cultural Commendation for a very well-grown and flowered example of Dendrobium Falconeri, trained in an upright position.

J. F. Alcock, Esq., Northchurch, sent a hybrid Sobralia, in appearance like S. × Veitchiana, having yellowish flowers tinged with rose.

De B. Crawshay, Rosefield, Sevenoaks (gr. Mr. Stables), showed Odontoglossum × loochristiense Theodora, having broad, nearly white segments, irregularly blotched with brown, chiefly on the sepals, and a large brown blotch in front of the yellow crest of the lip.

Mrs. Haywood, Woodhatch, Reigate (gr. Mr. Salter), showed Cypripedium × Harri-Leeanum, a fine hybrid between C. × Harrisianum superbum and C. × Leeanum, most resembling the former, of which flowers were also sent for comparison.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), showed Physosiphon Loddigesii, bearing several racemes of flowers.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), showed the fine white Cypripedium × Antigone (niveum × Lawrenceanum), having the flowers slightly tinged with rose, and lined with rows of purple dots.

Messrs. J. Veitch & Sons, Chelsea, showed a small group of hybrids, including Lælio-cattleya × Aphrodite alba, with six flowers, L.-c. × Norba (C. Mossiæ × L. xanthina), having white sepals and petals, slightly tinged with yellow, and the lip rose with some crimson-purple veining; Lælia × Helen Veitch's variety (Digbyana × tenebrosa), having the sepals and petals greenish white, tinged with rose, and the lip sulphur yellow at the the base, and lined with purple, with the front lobe rose-coloured; the fine Cattleya × Atalanta, with four flowers on a spike, together with the handsome Cypripedium × W. R. Lee.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on June 5th, Silver Medals were awarded to R. Ashworth, Esq., and Messrs. Charlesworth & Co., and Bronze Medals to W. Duckworth, Esq., W. E. Watson, Esq., and Mr. J. Cypher, for groups. A Bronze Medal was also given for a beautiful group of thirteen plants of Lælia grandiflora (majalis). At the meeting held on June 19th, a Silver-gilt Medal was given to R. Briggs Bury, Esq., and Bronze Medals to

S. Gratrix, Esq., W. Thompson, Esq., and Mr. A. J. Keeling. These particulars were not included in the reports given in our last issue.

AT the meeting held on July 17th there was a good display of Orchids, the awards consisting of five First-class Certificates, five Awards of Merit, and, for groups, two Silver and one Bronze Medals.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received First-class Certificates for the charming little Sophrocattleya × Chamberlainiana, and the fine Lælio-cattleya × Martineti (tenebrosa × Mossiæ).

W. Bolton, Esq., Otterspool, obtained First-class Certificates for Odontoglossum crispum Boltonii and O. c. Joseph Chamberlain.

R. Ashworth, Esq., Newchurch (gr. Mr. Pidsley), received a Silver Medal for a fine group, and Awards of Merit for Odontoglossum crispum Amy, O. c. Florrie, and O. c. Victoria-Regina.

C. Parker, Esq., Preston, was given an Award of Merit for Cypripedium Curtisii giganteum, a very large form.

R. Tunstill, Esq., Burnley (gr. Mr. Balmforth), staged a good group to which a Bronze Medal was awarded.

Messrs. Charlesworth & Co., showed a fine group which obtained a Silver Medal. A First-class Certificate was given to Odontoglossum luteopurpureum var. Vulystekeanum, and an Award of Merit to Lælio-cattleya × Frau Mucia Rossbach.

DISA GRANDIFLORA.

HALF-A-DOZEN beautiful spikes of Disa grandiflora are sent from the collection of J. Charlton Parr, Esq., Grappenhall Hayes, Warrington, by Mr. Masterton. The sender writes: — "We have been very successful in growing and flowering this species, having now 170 spikes in bloom, our largest pan having 32 spikes. They are grown in a cool greenhouse, with a night temperature of 45° in the winter, and they are well supplied with water during active growth. The compost is peat and moss, well mixed with small crocks, clinkers and crocks being used for drainage. Care should be taken that the clinkers are well exposed to the air before using, to free them from sulphur." The flowers are splendidly developed, and most brilliant in colour, enabling one to realise to some extent the effect produced by the whole collection. When grown in this fashion one can appreciate the epithet, "Pride of Table Mountain," which is applied to the plant in South Africa. As Bolus remarks:—"It is the Queen of Terrestrial Orchids in the Southern Hemisphere." The spikes are not exceptional in size, but one of those sent bears three flowers. As for a branching spike, on which there was a discussion some time ago, we are more than ever confirmed in our belief that the story is a fable.

ORCHIDS AT KEW.

It has always been remarked that among showy Orchids there is a great falling off in the floral display during the summer months, but this does not apply so much to a more representative collection, where a constant succession of bloom may be found throughout the year. The new Orchid houses at Kew have proved a great success, and during the last week in July a very large number of species are in flower, including many of showy species, with the usual instalment of interesting rarities.

The genus Cattleya is well represented, including the very rare natural hybrid C. × sororia, C. Aclandiæ, C. granulosa, an example of C. Loddigesii with three fine racemes, together with C. Warscewiczii, C. Gaskelliana, C. Eldorado and the pretty white form C. E. Wallisii. The pretty little Lælia monophylla is represented by a healthy specimen bearing nine of its orange-red flowers, other species in bloom being L. Dayana and L. xanthina, together with the pretty little hybrid L. × Euterpe. A small plant of Sophrocattleya × Chamberlainiana, bearing two flowers, of a light rosy cerise with a yellow disc to the lip, is very distinct and beautiful.

Several interesting Epidendrums are in flower, including E. evectum, E. elongatum bearing numerous heads of bright purple flowers, a well flowered specimen of E. radiatum, E. prismatocarpum bearing four spikes, E. nocturnum, the curious little E. equitans, a plant seldom met with, and two or three others.

A few other things belonging to the Epidendrum group are the curious little Hartwegia purpurea, having variegated leaves, and purple flowers, and a good example of the brilliant Epiphronitis × Veitchii.

Dendrobium is represented by the interesting little D. secundum, with its flowers all turned towards one side of the spike, D. Draconis, D. infundibulare, D. macrostachyum, and D. gracile, a curious species having the slender stems club-shaped near the base, and the flowers white.

The feathery-lipped Bulbophyllum barbigerum is carrying two spikes, and B. grandiflorum is producing several of its remarkable flowers, while the allied genus Cirrhopetalum is represented by C. Makoyanum. Eria velutina is a good specimen with numerous flowers, a second species being the Bornean E. latibractea.

Masdevallia is exceptionally well represented, those in flower including the remarkable M. muscosa, both the dark purple and light coloured varieties of M. infracta, good examples of M. inflata, M. peristeria, and M. floribunda, the graceful little M. gemmata and tridactylites, the rare M. Carderi, together with M. xanthina, M. coriacea, M. maculata, M. Reichenbachiana, M. Wageneriana, M. × glaphyrantha, M. × Gairiana, and others of the showy-flowered group. Of allied genera may be

mentioned a good plant of Physosiphon Loddigesii, Scaphosepalum ochthodes, and the tiny little Pleurothallis unistriata.

Oncidium is another genus which is very well represented at this season, those in flower including the rare O. Wentworthianum, O. longipes, O. exasperatum, a small-flowered species of the Microchila group, O. Papilio and its handsome ally O. Kramerianum, O. carthaginense, the terete-leaved O. Cebolleta, the graceful O. phymatochilum, and others. Among Odontoglossums are O. Wallisii, O. Lindleyanum, O. Harryanum and some of the showy species, together with Rodriguezia venusta, a handsome example of Cochlioda Noetzliana, C. rosea, Gomeza planifolia, and a few others of the tribe Oncidieæ.

Among the Sarcantheæ are good examples of the old Vanda Roxburghii, and a variety having a rosy tip, V. suavis, V. Bensoni, Phalænopsis amabilis, the rare Sarcanthus Roxburghii, Saccolabium gemmatum, the very rare Aëranthus Curnowianus, good examples of Angræcum Eichleria-num, A. Scottianum, and the pretty little Japanese A. falcatum.

Grammangis Ellisii is carrying a fine raceme of about thirty flowers, Polystachya is represented by P. laxiflora and P. zambesiaca, and Eulophia by E. euglossa and E. pulchra. Promenæa xanthina is a neat little specimen bearing numerous bright yellow flowers. Calanthe × Dominiana, the first artificially raised hybrid to flower, is bearing five inflorescences, and other interesting plants include C. veratrifolia, Maxillaria crassifolia, a well-flowered Stanhopea oculata, Microstylis congesta, Liparis Prainii, and Thunia Bensonæ.

The tribe Ophrydeæ is represented by the brilliant Disa grandiflora, and the rare Cynorchis grandiflora, and Neottieæ by Sobralia xantholeuca and S. Lowii. Lastly may be mentioned the Cypripedieæ, of which various species and hybrids are in flower, one plant of Paphiopedilum Parishii bearing as many as five racemes. The collection is rich in botanical rarities, and, as the showy species are also well represented, there is always something of interest in flower.

ORCHID HYBRIDISING IN AUSTRALIA.

In his presidential address to the Linnean Society of New South Wales, in March last, Mr. J. H. Maiden referred to "Hybridisation Work in New South Wales," remarking:—"During the past year an interesting Orchid hybrid raised by one of our Members (Mr. F. Godwin, gardener to Dr. John Hay) was exhibited before this Society. It is Cymbidium Lowianum × C. eburneum, and it is figured and commented upon in the *Gardeners' Chronicle*, 13th July, 1901, p. 25. The statements are made, 'This is the first, so far as our knowledge goes, cross raised and flowered in

Australia. . . . The flowers measured 5½ inches across, which is equal to the standard in point of size? . . .

"Returning to Mr. Goodwin's work, I am glad to hear that he is working at Cattleya and Lælia hybrids, also at Cypripedium, *Zygopetalum*, Lycaste, Dendrobium and Phaius."

"Mr. Hugh Dixson, also one of our Members, has obtained good results with Dendrobium bigibbum (an Australian species), Phaius and Spathoglottis; while Mr. Williams, gardener to Mr. Onslow, of Camden Park, has done good work with Vanda teres and several Cypripediums. Mr. D'Arcey, Orchid grower at the Botanic Gardens, has experimented with Cattleya, Lælia and Cypripedium; while Mr. Hazlewood, of Botany, is another experimenter with Orchids."

Speaking of Hybridisation generally, Mr. Maiden remarks:—"Many successful variations are not the result of experiment but of accident. An observant man making his rounds through his garden has acquired fame, and sometimes fortune, by observing peculiarities in the growth of self-sown seedlings, fertilised without human aid."

VANILLA IN AUSTRALIA.—At an earlier meeting, we learn that "Mr. R. T. Baker exhibited, on behalf of Mr. Hugh Dixson, specimens of Vanilla (Vanilla planifolia, Andr.) grown by that gentleman at his private residence at Summer Hill, near Sydney. The pods appeared to have been quite successfully cured, as they possess all the characteristics of the commercial article, and the aroma and shining surface in no way seemed to differ from those of the true Mexican Vanilla. One vine yielded about 50 pods."—*Proc. Linn. Soc. N.S. Wales.*, xxvi.

SOPHROCATTLEYA × HARDYANA.

ANOTHER seedling of the pretty little Sophrocattleya × Hardyana is sent from the collection of F. Hardy, Esq., Tyntesfield, Ashton-on-Mersey, by Mr. Stafford, which is so different from the one figured at page 209 of our seventh volume, that at first it was thought to be something else, though it bore the record S. grandiflora × C. Aclandiæ. It has a strongly three-lobed lip, and the short rounded side lobes give it almost the typical Aclandiæ shape, while the widely spreading sepals and petals also rather approximate to this parent. The ground colour is yellowish, with a suffusion of purple—being a modification of the colour of the Sophronitis parent—and a few purple spots, which show the Aclandiæ influence. The front lobe of the lip and the column are bright purple. The flower is just under three inches across and is probably not fully developed.

BRASSAVOLA DIGBYANA.

It has been suggested that an illustration of Brassavola Digbyana carrying a seed-pod would be of interest to our readers, and consequently we have pleasure in reproducing a photograph sent by R. G. Thwaites, Esq., of Streatham. Mr. Thwaites remarks that the flower was fertilised last August, with Cattleya intermedia alba, and thus the capsule is about nine months old, and has nearly reached maturity. The photograph is

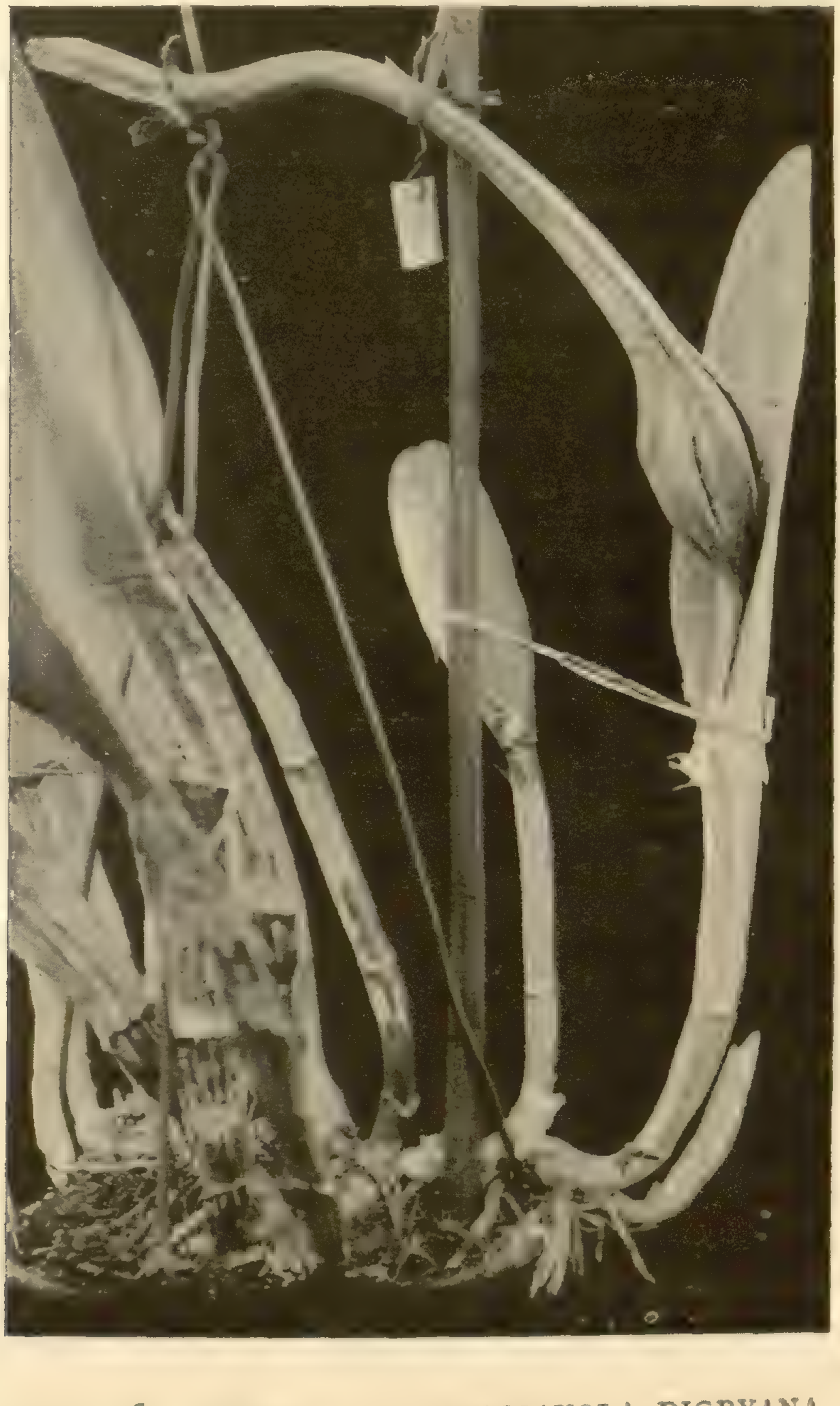

FIG. 26. CAPSULE OF BRASSAVOLA DIGBYANA.

necessarily much reduced, and the dimensions are not stated, but the description of one previously given in these pages (vii., p. 239) will probably apply. In that the beak of the capsule was six inches long, or three times as long as the swollen portion at the base containing the seeds, while at the summit of the beak was situated the column, 1¼ inches

long, with the remains of the shrivelled perianth segments. All these characters are well shown in our illustration, and it will also be noticed how short is the pedicel below the capsule. All these characters agree with Brassavola, not with Lælia, and it is certain that the plant does not belong to the latter genus. Should Mr. Thwaites succeed in raising seedlings it will be interesting to see what they are like, because one of the parents is an albino.

DENDROBIUM × HUNTERI.—Mr. Thwaites also alludes to the remarkable Dendrobium × Hunteri, described at page 153, remarking:—"It would be interesting if Mr. Hunter would communicate to you the result of further flowerings, as I think it not at all unlikely that some of the other seedlings may more nearly resemble D. Brymerianum, and I hope that some may be intermediate." It may be added that we know of one attempt to repeat this cross, the pollinia of D. Brymerianum and D. nobile having been reversed, but in neither case did the capsules swell.

CALENDAR OF OPERATIONS FOR AUGUST.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE weather continues to be very changeable for the time of year. During the past month we have experienced some cold and comparatively sunless weather; in spite of this, however, some Orchids continue to thrive, especially Cool Orchids, such as Odontoglossums and Masdevallias, which have greatly benefited by the cooler conditions which have prevailed. On the other hand Dendrobiums, Cattleyas, and Lælias will be much later than usual in completing growth; some of these, indeed, are only commencing to push forth new growth, and these, it is unnecessary to say, should be given every encouragement to make up for lost time.

A few Dendrobiums of the early flowering section that have completed growth, will now require to be removed from their present conditions to one more favourable for ripening their pseudobulbs. This alteration in conditions should be done in such a way that no harm from sudden check will result to the plants. Where a resting house is not set aside for this purpose, a vinery will be found a suitable place to meet their requirements. The plants most forward here, and which will soon have attention at the present season, are D. Wardianum, D. aureum, D. nobile, D. × Ainsworthii, D. × euosmum, D. × Cassiope, D. × endocharis, and D. × Curtisii. These are amongst the earliest, but the season will be found late generally, so that care must be taken not to remove them until they are quite ready, or shrivelling of the pseudobulbs will take place. Give only sufficient water while resting to maintain the pseudobulbs in plump condition.

Lælia anceps, whilst pushing up their flower spikes, which they are now doing rapidly, will require every attention and encouragement, in order to induce them at the same time to properly develop and mature their pseudobulbs. The new leaves of some of these are scarcely self-supporting, and harm will sometimes result if they are not attended to, by temporarily supporting them, and tying them up in a correct position; in a few days this may be removed, as the leaves will soon gain their normal rigidity. Afford the plants all the light possible, by removing the shading that has been employed, and during the middle of bright sunny days give ample ventilation, syringing the plants freely overhead the first thing in the morning, and later before opening the ventilators. Close the house sufficiently early in the afternoon, and again syringe overhead; sufficient sun-heat will then be obtained to dry up the excess of moisture before evening. L. autumnalis, L. Gouldiana, and L. albida, other beautiful winter bloomers, are now moving nicely, and enjoy the conditions which the Mexican House affords.

The new pseudobulbs of Cattleya Trianæ are fast approaching maturity, and should be removed to drier and less growing conditions. If another house is not available, a suitable place may be found in the Cattleya House, selecting the driest and airiest place for them, and giving sufficient water only to maintain them in plump condition.

Cœlogyne cristata, Lycaste Skinneri, and the deciduous Calanthes, are well advanced in growth, and, if well rooted, enjoy at this period light applications of liquid cow manure. This may be applied with beneficial results to the evergreen Calanthes, Phaius grandifolius, and similar species, also to Sobralias, Pleiones, and many other terrestial Orchids.

Cattleya superba is a beautiful autumn-flowering species that is often found difficult to manage. I find it grows very well if strapped on bark or wood blocks, giving very little compost or rooting medium, and suspended in a bright part of the East Indian House. It should be given abundance of water at the present season, and after flowering, only sufficient to retain the pseudobulbs in their plump condition.

Cattleya Bowringiana is also rapidly advancing its new growths, and should be placed in a light position at the warmest end of the Cattleya House. Be careful not to over-water at this stage, especially during periods of dull weather, as excess of moisture at the root often causes the outer shields of the growth to turn black, and sometimes the base of the growth to decay. Shading, too, will often cause damping at the present season, if not carefully attended to.

Cattleya Eldorado produces its beautiful flowers at the present time, and these are very welcome, coming at a time when flowering Orchids are ro numerous; indeed it cannot very well be dispensed with. I find it

a plant of easy culture, and gives most satisfaction when grown in pans and suspended in the warmest house. The plants usually make their growth in the summer months, and produce their flowers before this is matured, which is generally during the present month. The plant will commence to make new roots immediately, and any repotting or top-dressing should then have attention. The drainage should be ample, and a suitable compost will consist of two parts turfy peat to one of chopped sphagnum moss.

Stanhopeas, I am afraid, are not grown to anything like the extent as in former years, in fact, in a great many collections they are fast becoming extinct. Nearly two or three dozen plants are grown here, and seem to enjoy the conditions of the plant stove; they are rarely disturbed at the root, and seem to flower very satisfactorily under these conditions.

The best time for repotting Stanhopeas is soon after flowering, but it should only be done if the material has become decomposed, or the decay of the basket necessitates it. Use bracken rhizome for drainage, as then the flower scapes from the base can penetrate through the compost more readily than when crocks are used. The compost should consist of two parts peat, one of sphagnum moss, and a sprinkling of moderately coarse charcoal and coarse silver sand; press the compost moderately firm at the base of the plant, and apply water directly afterwards. Suspend them in a shady part of the house, and give them every encouragement for the roots to get hold of the new compost, so that they may soon establish themselves. The remarkable genus Coryanthes requires similar treatment.

Odontoglossums, Masdevallias, and other inmates of the cool house will, in the course of the next few weeks, require attention, for the autumn months are undoubtedly the most suitable for repotting operations, as the plants then soon become established, and root more freely than they do if left until the spring months. It is not necessary that these should be repotted annually, provided enough root space is afforded for a longer time, and no harm will result by leaving them another year where these conditions are satisfactory.

ODONTOGLOSSUM CRISPUM DIMORPHIC.

A REMARKABLE case of diversity between flowers on the same scape has appeared in the collection of R. G. Thwaites, Esq., of Streatham, of which photographs have been sent to us. The flowers are also remarkable for the great breadth of the segments, and it was this point which first attracted attention. A small plant produced a two-flowered scape, and at the end of May the first flower expanded, and, on account of its fine shape and broad segments, was photographed. The photograph shows the second bud,

which afterwards expanded, and proved quite different in the spotting, though retaining the same excellent shape. This also was photographed, and it is interesting to note the differences. The first flower has the dorsal sepal unspotted, and the lateral pair show one and two spots, while the petals have each two spots, one on either side being elongated into a broad line. In the second flower there is a cluster of seven or eight partially confluent spots in the centre, and five or six more disconnected ones on each lateral sepal. The petals have respectively two and three round spots, but in the lip the chief difference consists in the upper flower having larger spots. Both sepals and petals are remarkably broad and short, the latter measuring $1\frac{3}{4}$ and $1\frac{5}{8}$ inches across, and this gives the flowers a very round appearance, besides being nicely toothed and undulated. It is unnecessary to say that the plant will be taken great care of, and it will be interesting to note its behaviour another season, when the plant becomes stronger.

ORCHIDS IN THE NEW YORK MARKET.

On February 23rd, 1901, a lecture was given to the Massachusetts Horticultural Society by Mr. Patrick O'Mara, of New York, entitled, "A Quarter Century's Evolution in American Horticulture," which has just been published in the Society's *Transactions*, and which contains the following reference to Orchid culture. Mr. O'Mara's connection with the business began in the winter of 1874-75, and he remarks:—"Orchids, with the exception of Cypripedium insigne, Dendrobium nobile, Bletia Tankervilleæ (or Phaius grandifolius), Peristeria elata, and Zygopetalum were unknown, and only a few of these found their way to market, mainly from private collections. The glorious Cattleya had not yet made its appearance. There is a well authenticated story of its first appearance in a Broadway, New York, flower store. A noted beau, who called in every morning for his boutonnière, was always looking for something new. The proprietor had obtained a Cattleya flower, and had it safely stored in the ice box awaiting his appearance. He came. Reverently the flower was placed in his button-hole; silently he was turned toward the mirror. There was an air of mystery, the play of an artist, about the whole performance, and then the climax; 25 dollars for the flower, which was paid with alacrity. It is further stated that for many days thereafter the same gentleman called regularly as usual for his Orchid, but the price had dropped to 15 dollars. No wonder that some of our millionaires decided to go into the business of raising them. It is difficult to get statistics on cut flowers which are reliable, but from the best information obtainable I feel safe in saying that the value of Orchid flowers sold annually in the New York Market for

several years past will not fall short of one hundred thousand dollars. This is only one of the many features in the evolution of horticulture."

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during August, on the 5th and 19th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold a meeting at the Coal Exchange, Manchester, on August 14th. The Orchid Committee meets at 10.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

A flower of the remarkable peloriate form of Cattleya Mendelii, which was figured at page 241 of our seventh volume, is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, this being the third year of flowering, and it is interesting to find that it remains perfectly constant. The petals are exactly like the lip in shape, markings, and colour, but all are shorter than the normal lip, and the infolding of the side lobes makes the flower appear double. It is a remarkable deviation from the normal type, and is very striking.

A beautiful form of Cattleya × Hardyana having white sepals and petals is sent by Messrs. Hugh Low & Co. It is from a very small plant which it was not supposed would bloom this season, until a single bud appeared without a sheath, which has now expanded. It has the true shape, and some of the typical Dowiana yellow veining on the lip, while the ground colour is rich purple, becoming lilac at the undulate margin. The flower is undeveloped at present, and can better be compared with other white forms of Hardyana when it flowers again.

A photograph of a fine group of white forms of Lælia anceps inthe establishment of Mr. J. Cypher, at Cheltenham, is given in a recent issue of the *Garden* (1902, lxii, p. 31).

An inflorescence of the pretty little Bifrenaria aurantiaca is sent from the collection of J. W. Arkle, Esq., West Derby, Liverpool. The flowers are orange with some brown spots. It is a native of British Guiana, and was introduced to cultivation over sixty years ago.

A good flower of Cattleya Mendelii is also sent from the same collection. It is fairly typical, except that the yellow of the disc is nearly absent.

A curious form of Odontoglossum crispum is sent from the collection of R. G. Thwaites, Esq., of Streatham, which has some yellow peloriate markings on the lower sepals. It will be interesting to see if the plant shows the same character next year.

A flower of an exceptionally fine form of Cattleya Gaskelliana, called var. Lady Pirbright, is sent from the collection of Lord Pirbright, Henley Park, Guildford, by Mr. Repton, together with a brightly coloured flower of average size. The former has the petals $4\frac{1}{4}$ inches long, with the remaining parts equally well developed, and the shape excellent. It is fairly typical in colouring, and is a very handsome variety.

Two remarkably distinct forms of Odontoglossum × Coradinei are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens. One has the ground colour white, and the blotches on all the segments are very large, and chestnut coloured. The column wings and crest strongly recall O. Lindleyanum, also the shape of the lip and the very large chestnut blotch, but this organ is neatly fringed all round, which is a somewhat unusual character. The flower measures $3\frac{1}{2}$ inches from tip to tip of the petals. It is a very promising variety. The other is smaller, and has the ground colour yellow, but there are numerous red-brown spots on the lower part of the sepals and petals. Both forms should be taken good care of.

Mr. Stevens also alludes to a form of Odontoglossum crispum which flowered in the collection last year, and showed some markings in the petals, approaching those seen in the variety Lady Jane. This year it has flowered again in improved form, retaining the peloriate character, in proof of which a shrivelled flower is enclosed. We shall hope to see it in good condition next year.

We are very glad to find that further progress is being made in the raising of seedling Odontoglossums. Mr. Stevens has now some five or six hundred of them — we do not know how many different crosses are included—but it will be very interesting to watch their progress towards the flowering stage, when there may be some surprises in store.

Cynorchis villosa, Rolfe, is a very pretty little novelty which flowered at Kew some time ago, and is just figured in the *Botanical Magazine* (t. 7845). It is remarkable for its very hairy flowers, which are bright-purple in colour, and borne in dense oblong heads. It is one of M. Warpur's introductions from Madagascar.

At a Flower Show held at Boston, Mass., on June 19th and 20th last, according to *American Gardening*, for June 28th (p. 419), an interesting

hybrid from Cypripedium Rothschildianum × C. Hookeræ Volonteanum was shown from the collection of Oakes Ames, Esq., by Mr. R. M. Grey.

Some good Orchids were also exhibited from the collections of J. E. Rothwell, Esq., E. J. Milton, Esq., and H. A. Wheeler, Esq., the latter gaining the prize for a single specimen with a beautifully flowered example of Lycaste aromatica, bearing 106 flowers.

ORCHID PORTRAITS.

Anguloa Clowesii.—*Gard. Mag.*, 1902, p. 460, with fig.

Cynorchis villosa, Rolfe.—*Bot. Mag.*, t. 7845.

Cypripedium × Emperor of India.—*Rev. Hort.*, p. 339, fig. 139.

Cypripedium Rothschildianum (malformed flower).—*Gard. Chron.*, 1902, xxxii, p. 23, fig 10.

Lælia crispa superba.—*Journ. Hort.*, 1902, xlv, p. 73, with fig.

Lælio-cattleya × Nysa.—*Journ. Hort.*, 1902, xlv, p. 25, with fig.

Miltonia vexillaria gigantea.—*Journ. Hort.*, 1902, xlv, p. 49, with fig.

Odontoglossum × ardentissimum.—*Gard. Chron.*, 1902, xxxii, p. 50, fig. 19.

Odontoglossum crispum ardentissimum.—*Garden*, 1902, lxii, p. 44, with fig.

Odontoglossum crispum Lady Jane.—*Journ. Hort.*, 1902, xlv, p. 3, with fig.

Odontoglossum × Edwardus Rex.—*Rev. Hort.*, p. 332, fig. 138.

Odontoglossum × Queen Alexandra.—*Gard. Mag.*, 1902, p. 473, with fig.

Sobralia × Wiganiæ.—*Gard. Mag.*, 1902, p. 441, with fig.

Zygonisia × Rolfeana.—*Gard. Chron.*, 1902, xxxii, p. 30, fig. 11.

CORRESPONDENCE.

(*Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.*)

J. W. A. Bifrenaria aurantiaca.

G. Awards, we believe, are generally made on the merits of the plants exhibited, without much reference to what they are called—at all events so far as varieties are concerned. In some cases names are more numerous than varieties, and some of the older certificated varieties have been quite lost sight of.

A. H. Maxillaria marginata.

X. The plant is probably a stray seedling from some other batch, for it is not at all unusual to find them under such conditions. The origin of the plant may be discovered later on.

Photograph received, with thanks. H. J. R.

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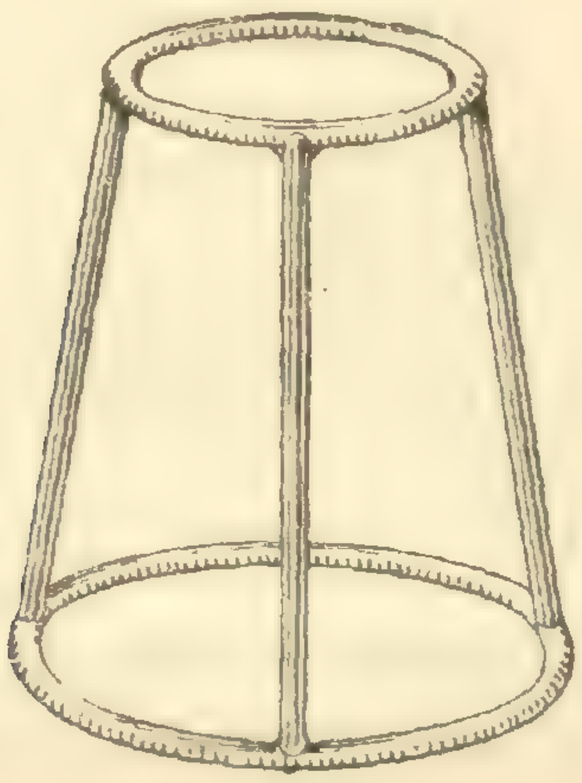

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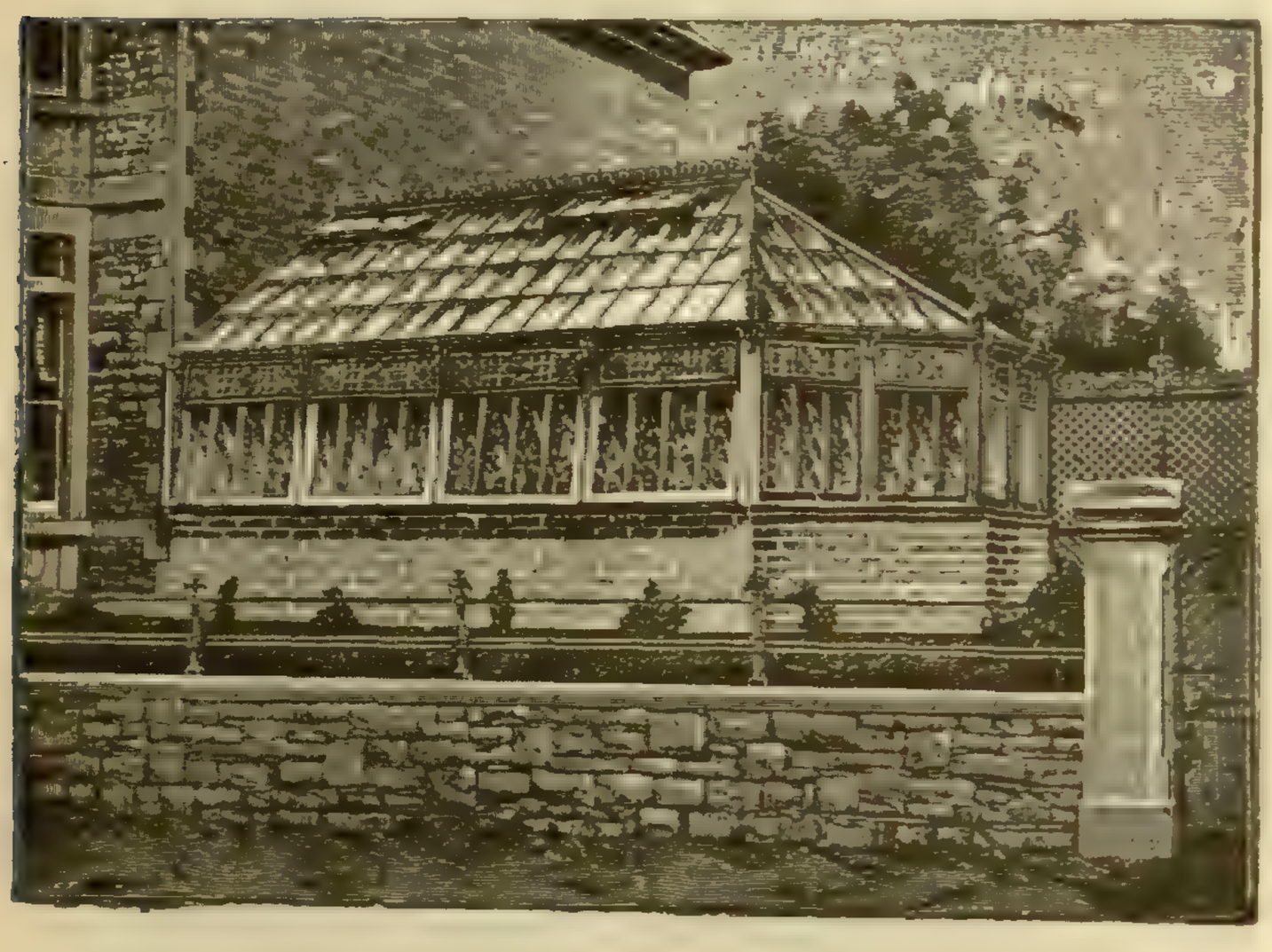

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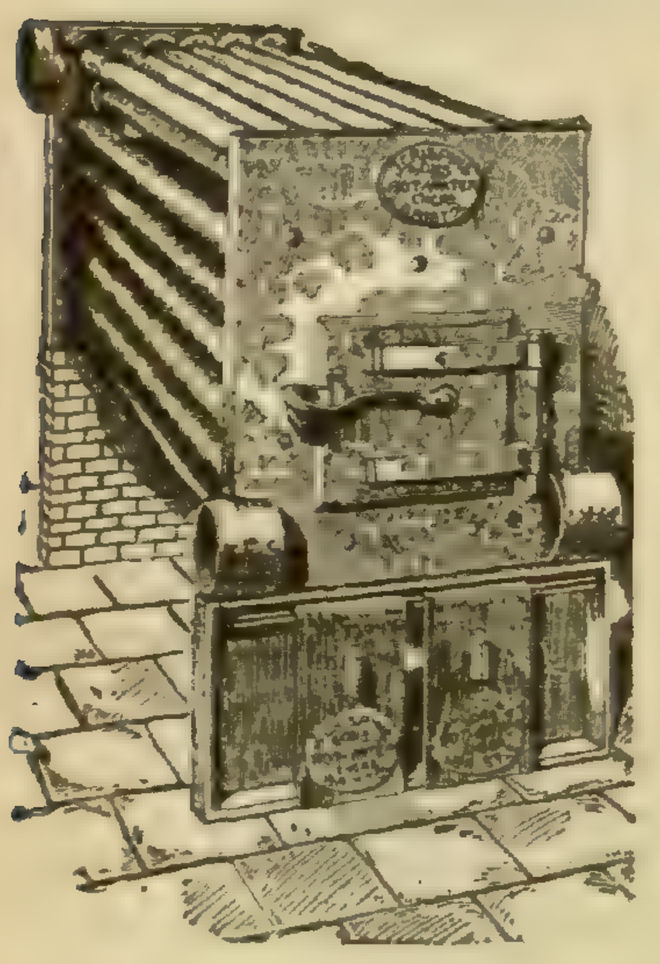

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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VOL. X.] *SEPTEMBER*, 1902. [No. 117.

DIES ORCHIDIANI.

IT would appear that the system of growing Orchids in leaf-mould is being tested very thoroughly, for after finding some difference of opinion among American growers, we now have a favourable opinion of the new compost from far Japan (page 231), where experiments have been carried on for some three or four years. It is interesting to find a similar account of the improvement of certain genera when grown in leaf-mould to that reported from various European collections, and the question which seems of most importance at the present time is to know how best to collect or prepare it, and in what proportions it should be mixed with other ingredients to get the best results.

One interesting point, however, comes out in the discussion, namely that Cypripediums form an exception, not thriving in the new compost like other subjects, and that after careful trials for two seasons its use has been given up. This at the first glance may seem somewhat surprising, these plants being terrestrial, but it bears out what I think has been previously stated, and I remember to have heard of one successful grower who had experimented with the new compost, with equally disappointing results, and had abandoned its use in consequence. It would be interesting to have some details of these experiments, for pure leaf-mould, as sometimes recommended, might be too light for these plants, which usually thrive better when a proportion of fibrous loam is added to the compost. I have been told that these plants grow naturally in a stronger soil than that recommended for epiphytes, which would explain their comparative failure in leaf-mould, and some of our most successful growers invariably add a certain proportion of fibrous loam to the compost used for certain terrestrial species. That true epiphytes, which grow in accumulations of decaying vegetable matter on the branches of trees—or obtain most of their nutriment from this source—should thrive in leaf-mould is not surprising, and the observations above mentioned may help us in estimating the value of leaf-mould in Orchid culture, and the way it should be used. Humus, or

decaying vegetable matter in some form or other, is indispensable to the cultivator, but other ingredients are also requisite, and the compost should be varied to suit the requirements of the different subjects.

A note just published in the *Journal of Horticulture* (page 169), on the use of liquid manure for Orchids, under the signature "A.," recalls the discussion which we had some time ago on the subject, and also the recent remarks on the use of manurial fertilisers in America (*ante*, pp. 165-168), which a correspondent alludes to as sufficient to make one's flesh creep. But after all it is only a question of nourishment, and Mr. Lager very well points out that some of the natural supplies of food are cut off when a plant is brought into an Orchid house, potted in peat and moss—which contain but little food—and watered with clean water only. "Orchids," he remarks, "are like human beings, the more variety of food they get the better they grow." And his remarks on Orchids in their native habitats—and he has had good opportunities for observing—afford food for reflection. It may be interesting to give the remarks of "A" above alluded to.

"Liquid manure," he observes, "is not generally given to Orchids, but it is a question if great numbers would not be benefited if it were. Peat is too much used, under the mistaken impression that it yields something beneficial to the plants. We do not say that peat should never be used in Orchid culture, for we know that great numbers require such material, but we feel assured from experience that great numbers would be much better without. All Orchid growers admit that decaying peat is an evil, but few seem to understand that only decaying material can yield plant food. A friend, who has on more than one occasion brought plants from the East Indies and elsewhere, tells us that all the good roots he had seen on Orchid plants in the wild state were either attached to fresh hard bark, or growing among living vegetation, or dangling in the air. He also assures us that many, or most of the kinds which grow on trees, are fed with liquid manure naturally. He has almost invariably found the branches of the trees bespattered, often plentifully, with the excreta of birds and mammals. This is washed by rain within reach of the roots of the Orchids, and we cannot doubt that they are thereby benefited. Is not this a hint worth thinking about? Orchids, however, are not to be tampered with, but we are sure that weak liquid manure applied to those plants which have filled their pots or baskets completely with healthy roots helps them greatly, as in the case of Cypripedium insigne and many others."

I have no doubt that "A," is right, and the two most important things to find out are what to apply and when to apply it; points which some of

our own growers as well as the Americans are trying to find out for themselves.

The illustration of the noble specimen of Cattleya Mendelii given at page 253, and Mr. Millican's account of the distribution of the species, and the conditions under which it grows, are both extremely interesting, and make one wish that more of our collectors would give us such graphic details of the beautiful species with which they have enriched our collections. In many cases no particulars of the climate, or natural conditions under which the species grow, are stated, so that the cultivator has to find out how to treat them as best he can, and the wonder is that failures are not more frequent than they are. This remark, of course, applies chiefly to new introductions, but there are several old inmates of our collections of whose distribution very little is known, and now that our nurserymen raise most of their Orchids at home, instead of importing them from abroad, there seems little hope of further information coming to hand.

Shall we ever get rid of "Confusion in Nomenclature"? I have twice alluded to the question of Odontoglossum × ardentissimum, or whatever the correct name may be, but no sooner does it seem settled that the plant is a variety of O. × armainvillierense than we are told that connoisseurs say that it has no relation with that plant. The records at all events state that both were derived from the same two species, and until these have been proved erroneous the name had better remain as it is at present.

ARGUS.

CULTURE OF ORCHIDS IN LEAF-MOULD.

IN a recent issue of *American Gardening* (p. 513), Mr. A. Dimmock writes on the use of Belgian leaf-mould for hybrid Phaius, of which a fine specimen, showing a profusion of roots outside the pot, is reproduced from a photograph (fig. 108):—

"Much has been written of leaf-mould culture for all kinds of Orchids. The photo sent is one of our hybrid Phaius, of which we now have some thousands. The plant is evidently happy and the roots in perfect health. The fresh green moss and the robust foliage demonstrates that the compost is right. Please note the decided improvement in this season's over the older growth. The plants were formerly grown in loam and peat; the present growth is the result of changing the compost. Many of the plants cannot be removed for repotting without destroying the present pot to save the roots.

"There are several varieties of Phaius very easy to cultivate, and one occasionally meets with vigorous plants, but in this instance such difficult growing subjects as P. Humblotii and P. tuberculosus [simulans] have been used for hybridising, and the progeny grew very slowly until all were placed in leaf-mould. I hope to send you shortly a hybrid Cattleya rooting in a similar way. All our Cattleya and Lælia hybrids—of which we have eighteen houses in St. Albans, England, and Bruges, Belgium—are now grown in leaf-mould, and are the admiration of all who see them."

Mr. W. N. Craig also gives some of his experiences with leaf-mould (p. 514), as follows:—

"We have been experimenting with leaf-mould for over a year now, and while some subjects do not take kindly to it, others seem to like it. Some Cattleya Mossiæ received in Belgian leaf-mould do much better in our fern fibre; but we have seen other Cattleyas and Lælias grown in a mixture of leaves, fern root, and moss, and they root nicely in it. Odontoglossums do quite well in it, but, on the other hand, Miltonia vexillaria does not seem to like it at all. Cœlogynes do all right in it, and some of our best Dendrobium Wardianum are grown in it. Cypripedium insigne and C. insigne Sanderæ tried in it do not seem to be a success.

"We do not even now, after a year or more's trial, feel prepared to pass a definite opinion on this system, but shall continue to experiment with it.

"In speaking of leaf-mould, let it be understood that it is not fully rotted leaves that we use, but those a year old, which are partially decayed; oak and beech are the best. If we go to the woods in early fall, before the leaves come from the trees, we can pick up a layer of partially decayed leaves which are soft and spongy in texture. These are in a proper condition to use.

"In Belgium a fine white sand is found mixed with the leaves, which tends to keep them porous. We do not use fine leaf-mould for any plants, but always mix an equal proportion of chopped sphagnum with it, and sometimes a little fern root or charcoal.

"For liquid manure we use cow or sheep manure, and give these in strong or weak doses to practically all well-rooted subjects in the growing season. We frequently syringe the surface of the pots of Cattleyas and Lælias with bone-dust water, and believe the Cookson formula to be an excellent fertiliser, not only for Cattleyas and Lælias but for many other Orchids. A top dressing of horn shavings and sphagnum moss soaked in water first to make them pasty, is excellent and safe, but we would go slow about surfacing plants with sphagnum and bone dust, or sphagnum and Clay's fertiliser."

A HYBRIDIST'S COLLECTION.

THE attention of hybridists and others has recently been called to Mendel's "Law of Inheritance," and as Orchid hybrids are now very numerous, the question has naturally been asked how far the facts observed among them are explainable on Mendelian principles. A preliminary paper on "Mendel's 'Law' applied to Orchid Hybrids" has been contributed to the *Journal of the Royal Horticultural Society* by Captain C. C. Hurst, F.L.S., Burbage, Hinckley, and the continuation will be awaited with interest by hybridists generally. Captain Hurst has also instituted a series of experiments in order to test the question further, and as we have recently had the pleasure of inspecting his collection, a few notes on the subject will be acceptable.

The wide range of variation between hybrid Orchids of the second generation has long been known, and we may recall a remarkable series of varieties of Paphiopedilum × Hera from Captain Hurst's collection, of which an account was given at page 74 of the present volume. This hybrid is descended from a cross between P. Boxallii and P. × Leeanum (P. insigne × Spicerianum), and as the species of this affinity are easily raised and cultivated, the group was selected for a series of experiments, which is likely to yield very interesting results, the more so as these winter-flowering plants are among the most useful and beautiful in the genus.

These later experiments are being conducted systematically and with praiseworthy precision, the primary object being to find out how far the results are comparable with those obtained by Mendel in the case of peas. Orchids, as subjects for a series of Mendelian experiments, possess, besides others mentioned by Captain Hurst in his R. H. S. paper, two great advantages, first, in being rarely self-fertilized, and, second, in having pollen of such a nature that the risk of contamination by stray pollen grains, so common in many other plants, is eliminated. On the other hand, there is the corresponding disadvantage that a considerable period elapses before they reach the flowering stage. Orchidists, at all events, will view Captain Hurst's selection with satisfaction, for it may give them some data to work upon, and at the same time yield a number of valuable horticultural acquisitions.

The species primarily selected for experiment are P. insigne, P. Spicerianum, P. villosum, and P. Boxallii, with their derivative hybrids, P. × Leeanum, P. × nitens, P. × Lathamianum, and P. × Calypso, together with a few other hybrids to which special points of interest attach, as P. × Grovesianum (P. × Leeanum × Lathamianum), and P. × Pluto (P. Boxallii × politum). The results at present take the form of a nice

little batch of seedlings about two years old, others raised last year, a third batch scarcely more than germinating seedlings, and some capsules not yet mature, the crosses being made as opportunities occurred.

The seedlings two years old comprise over sixty plants from P. insigne × Lathamianum (the seed parent in this, as in all the following cases, being placed first), fifty of P. × Lathamianum × Boxallii, sixteen of P. insigne × Spicerianum, which, of course, belong to P. × Leeanum, and a few of P. insigne self-fertilized. The latter might, to a casual observer, seem superfluous, but the object is to use them as a "control" experiment, for in comparing results it is often important to know the range of variation between self-fertilized seedlings from the same capsule. A similar remark, of course, applies to the P. × Leeanum seedlings previously mentioned.

The year old seedlings comprise nice batches of P. × Leeanum superbum × nitens magnificum (which, by the way, should yield some fine garden plants), and P. × nitens × Leeanum (typical), both, of course, belonging to P. × Charlesianum, of which such a remarkably varied series from Messrs. Cappe was noted at page 38. Again, P. Spicerianum × insigne Wallacei (the cross which yielded P. × Leeanum Albertianum), P. insigne Chantini × Lathamianum giganteum, a very promising cross, and P. × Hera punctatum self-fertilized.

The germinating seedlings comprise P. × Hera × Leeanum, P. × Leeanum Masereelianum × Hera, practically the reverse of the preceding, P. × nitens superbum × Calypso, P. × Leeanum Masereelianum × insigne Wallacei, P. × Lathamianum roseum (a richly-coloured form) × Leeanum superbum P. insigne Chantini × Leeanum giganteum, P. insigne Chantini × Spicerianum (the cross which yielded P. × Leeanum superbum), P. × Grovesianum (P. × Leeanum × Lathamianum) × Spicerianum, P. × Lathamianum × Grovesianum punctatum, P. × œnanthum superbum × nitens giganteum, P. × nitens superbum × Grovesianum Hurstii, P. × Pluto (P. Boxallii × politum) × insigne Chantini, P. × Pluto × Leeanum, and P. × Leeanum giganteum self-fertilised.

Of seeds sown but not yet germinated may be mentioned three forms of P. × Hera, corresponding to the groups 1, 2, and 3 mentioned at pages 74 and 75 of the present volume, which have been self-fertilized, and from which some interesting results are anticipated, as also from P. × Hera punctatum, mentioned above. This may be considered as a first step towards fixing these different forms, and in view of the wide range of variation in the original series it will be interesting to watch the results. And we must not omit P. × Swinburnei × P. Spicerianum, P. × nitens superbum × Calypso, and P. Spicerianum × nitens superbum. The last

cross should increase our knowledge of the polymorphic series of P. × aureum already raised by M. Jules Hye, of Ghent.

As suggestive of a continuation of the series, we may mention capsules, not yet ripe, representing P. × Leeanum Masereelianum × Leeanum superbum, and P. × Leeanum Prospero self-fertilized.

Besides the long time required for Orchids to reach the flowering stage, there is the well-known difficulty of the occurrence of stray seedlings, which might be urged against their selection for a series of Mendelian experiments, but Captain Hurst has taken special precautions against this, which we think are effective. The seeds of each cross are sown on several pots containing young seedlings growing in virgin compost, all of which are kept together in a separate glass compartment. When the pots are to be sown they are taken out of the house and thoroughly dipped in rain water (that from the tank inside the house being unsuitable because it frequently contains stray seeds), and after the sowing are again placed in isolation. Neither before nor afterwards are they ever dipped, but are watered overhead with rain water from another source.

In addition to the seedlings just mentioned it was interesting to see the original plants of P. × Hera, some sixty in number, about half of which were described in the article above named. Two of these varieties received Awards of Merit from the Manchester Orchid Society on January 24th, 1901, namely Dakini, a large richly-coloured form of the Spiceriano-Boxallii group, and burbagense, of the insigne-Boxallii series. There were also about a dozen plants purchased as P. × nitens × Medeia, a self-fertilized seedling of P. Spicerianum which has not yet flowered, P. × Bruno (P. Spicerianum × Leeanum), P. × Simonii Actens (P. × Leeanum superbum × P. insigne Sanderæ), P. × Leeanum Albertianum, P. × L. Prospero, P. × Leonidas, and a considerable number of others, including a large batch of the old P. insigne and some of its varieties.

Other plants in the collection which may be mentioned are, some thirty Dendrobiums, and over forty hybrid Cattleyas, Lælias and Lælio-cattleyas, several of which were in sheath or bud. One, called Lælio-cattleya × burbagensis, is described on another page. Cattleya × Iris oculata, a fine hybrid between C. bicolor and C. Dowiana, is in bud. The variety is characterised by having two yellow eyes on the ruby-red lip, the sepals and petals being lemon yellow. This specimen received a First-Class Certificate at Manchester in November, 1901. A hybrid purchased as a seedling from C. Mossiæ × Warscewiczii is in sheath, and should be interesting, as should be C. Percivaliana × Lælia anceps, if it proves true.

Not many Orchids are in flower at this season of the year, but we noted a hybrid opening between Paphiopedilum Argus and P. Rothschildianum, P. × Pluto var. rubens, in which the dorsal sepal, petals, and lip were

alike of a deep purple-red ; a plant of unknown origin, like a large form of P. × Ashburtonæ, Phragmipedilum × Sedeni candidulum, Cattleya Gaskelliana, and Epiphronitis × Veitchii. Respecting the latter it is interesting to note that Captain Hurst has obtained two capsules, as a result of crossing it with Lælia purpurata, though when they ripened and burst open at four months old they contained nothing but chaff. A third flower went off, as did three others pollinated with Cattleya Mossiæ and three with C. Mendelii. Thirty self-fertilised flowers yielded a like result, and all similar attempts in previous years have proved equally futile.

Other plants noted in the collection were, Angræcum sesquipedale, several pans of Sophronitis grandiflora, a few Cœlogyne cristata and its varieties, and a plant of Oncidium Kramerianum, which, it is curious to note, continued to produce flowers at intervals on the same scape for no less a period than two years and eleven months. These appeared at somewhat irregular intervals, and numbered between twenty and thirty. There is also a small house of Cattleyas and Lælias, and a number of Odontoglossums, at present in the frame outside. Most of the latter came as an importation of O. crispum direct from Bogota, but proved to contain also a few examples of O. × Andersonianum, O. × Denisonæ, O. × Coradinei, O. Lindleyanum, O. gloriosum, and O. luteopurpureum.

A curious experiment in hybridisation made here may be noted. A flower of Cattleya citrina was fertilized with mixed pollen of C. Lawrenceana and C. Lueddemanniana, and prcduced a fine pod, which on opening contained plenty of good seeds, though some that were sown failed to germinate. The rest were given to a friend to grow, and the result is not yet known. We have previously heard of the use of mixed pollen, and it would be interesting to know if any results have been obtained.

We shall watch the results of Captain Hurst's experiments with interest, and we hope that he will be able to throw further light on some of the vexed problems of heredity, which have recently engaged so much attention. It may be added that he does not confine his attention to Orchids, for he has also undertaken a series of experiments with Garden Peas, Sweet Peas, Poppies, Chinese Primulas, Berberis, and Fancy Poultry, all of them in connection with Mendel's principles and methods. He has found Poultry particularly well adapted to such experiments, on account of the rapidity, ease, and certainty of the results.

One useful hint to Orchid hybridists may be given, which came out in conversation with Captain Hurst. From his experience with and knowledge of other subjects, he is of opinion that better results may be obtained by self-fertilising hybrids of mixed ancestry than by further cross-fertilisation, besides giving Mendelian results which may be of great scientific value, and furnishing useful guidance to breeders in the future.

BRASSAVOLA CUCULLATA.

A BRIEF revision of the genus Brassavola was given in our March issue, and it is interesting to be able to illustrate one of the species. The annexed figure of Brassavola cucullata is reproduced from a photograph kindly sent by Frau Ida Brandt, Reissbach, Zurich, under the name of B. cuspidata, which, however, is only considered a form of the preceding. As the history of the genus has been so recently given (page 68) it is unnecessary

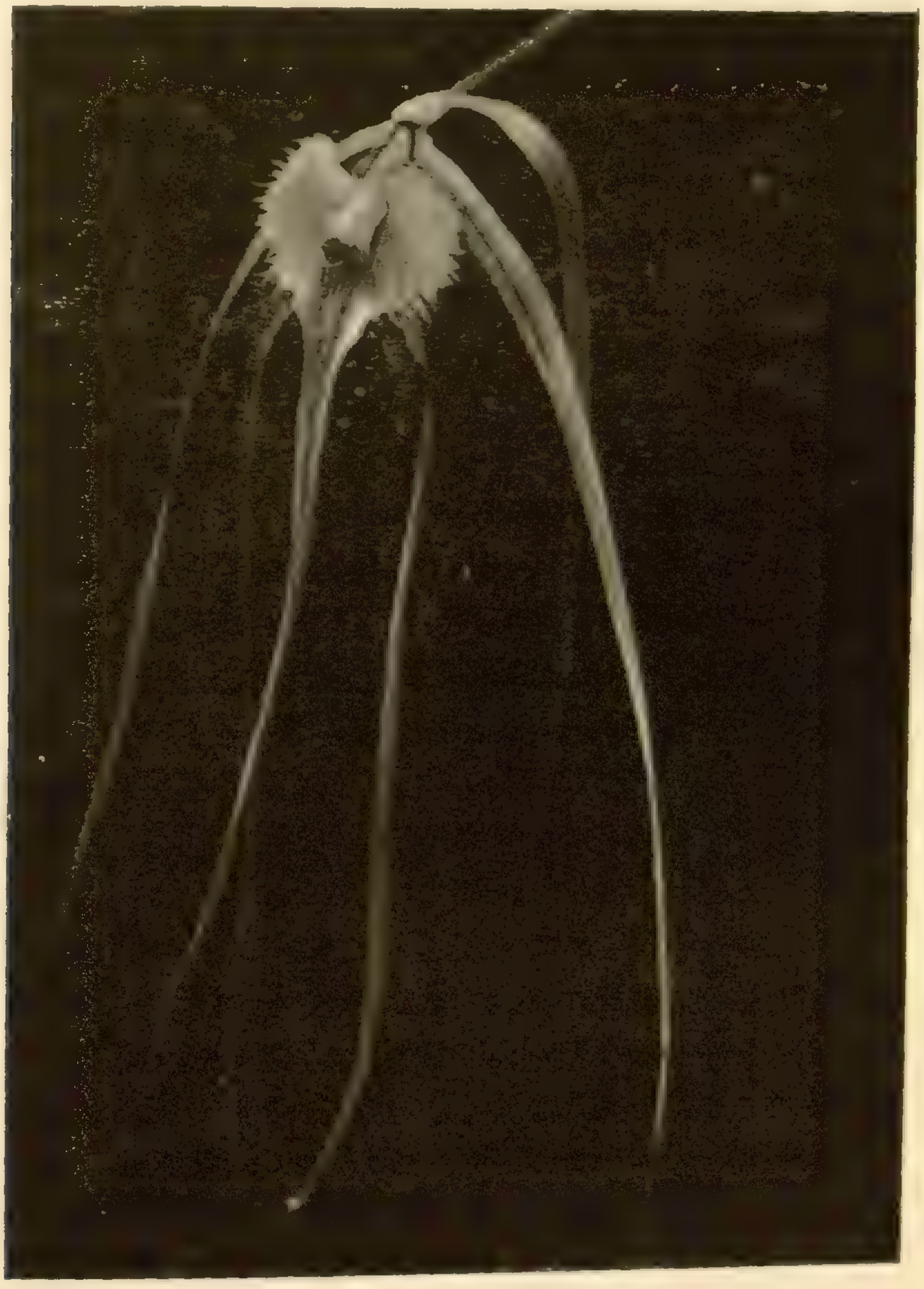

FIG. 27. BRASSAVOLA CUCULLATA.

to repeat it, and the details of the flower are well shown in the figure, so that we need only state that the colour of it is white. The ovary, however, is not shown, and we may add that its remarkable beak sometimes attains a length of over five inches, being several times longer than the ovary proper. The plant is of pendulous habit, and has slender terete leaves. It succeeds well if placed on blocks of wood, with a little

moss attached, and suspended from the roof of the Cattleya house. It should receive a liberal supply of water during the growing season, but afterwards a very moderate supply will suffice, particularly during the winter. It is a striking plant when well grown.

ORCHIDS OF COMMERCIAL VALUE.

Notes of a paper read by Mr. ROBERT KARLSTROM before the Hartford (Connecticut) Florists' Club, January 28th, 1902.

IN the past, when the demand for choice flowers and variety was not so great as it is to-day, most of our Orchids belonged to a limited number of private individuals; consequently, few flowers found their way to the flower stores or came before the general public. The few Orchid flowers then to be seen were looked upon more as curiosities than as an article of trade. The price, also, was beyond reach, and although they were much admired for their beauty, it seemed that Orchids never would become popular, as the supply was limited. The grower would not invest capital or spend much of his time on a plant for which he thought there was no market. Difficulty was also experienced in finding a person to grow this, then little known, plant. The grower must therefore personally take charge of, and look after his plants, and he would rather do that than entrust his comparatively large investment in the hands of an inexperienced or incompetent assistant. The retail merchant or storekeeper was equally careful in buying flowers he had small chances of selling, or to take an order for goods he was not sure to be able to fill. Under those conditions, the risk was naturally great on all sides.

But times have changed in the last ten years. It is hard to say where we are going to stop. Orchid plants number well up in the millions; flowers are cut and sold in much greater number, at a profit to the grower of tens of thousands of dollars, and still the demand is ever increasing.

Plants can never be cheaper, or the supply, I believe, more abundant than at the present time. Here are a few of the reasons: Orchids cannot be propagated by cuttings to over production, as is the case with most other plants. It is a very slow process indeed to propagate them by division, and it takes several years for most of them to attain their flowering period from seeds. We must, therefore, depend almost entirely upon importations from their native growing places. But even there the supply is getting smaller year by year, and it is, perhaps, but a question of time when it will become altogether exhausted. The immediate cause is the thoughtless, unconscious, and "don't care" Orchid collectors, the cutting down of the forests, and the needs of the ever-increasing population in these districts.

On the strength of this we may, therefore, say that an over production of this equally interesting and beautiful genus is next to impossible. The opportunity for the Orchid grower was never better than it is to-day. The demand is always increasing, and the supply nearly always limited. Orchid growing has become a trade of no mean reputation. May it continue to prosper, thus making a change in the monotony of the every-where appearing Rose or Carnation.

Years ago, when I was a little more connected with the commercial world than I am now, not more than ten thousand Cattleya Trianæ and as many Cypripedium insigne sold in Greater New York every year, and all those were grown in the neighbourhood of New York City. New York, however, is not the only city with a demand for Orchids, and the New York growers are not the only ones that can grow them. No, the field is open over this whole broad land of ours.

We have a long list of varieties, equally as good as Cattleya Trianæ and Cypripedium insigne, only waiting to be introduced, and, when that is done, I am positive they will become popular, appreciated, and dearly loved by the intelligent and flower-loving public. In making up a collection, it is, of course, necessary to chose such plants or varieties as promise to bloom through the whole or greater part of their respective blooming season.

The flowers of Cattleya are, as we all know, large and very beautiful, and especially the C. labiata group, which gives us an abundance of bloom almost all the year round. The first flowers in the late summer and fall are all of the old labiata type. This flower is always in demand, and ought to be grown more extensively than it is to day. Next comes the C. Percivaliana, with a smaller flower than the preceding one. This species comes in just between C. labiata and C. Trianæ, and is therefore well worth growing, but in smaller quantity. C. Trianæ is one of the most useful, and I think one of the most extensively grown of all the Cattleyas. With very little forcing it will bloom from Christmas to the middle of March, or even later. Next in turn comes C. Mendelii, closely followed by C. Mossiæ. When the two last-named bloom, Orchid flowers do not, as a rule, find as ready a sale, and it is therefore well to grow them in smaller quantities. During the rest of the year, July and the beginning of August, we have C. Gaskelliana, the gigantic C. Warscewiczii (gigas) and C. Eldorado. It will hereby be seen that it is possible to have Cattleyas in bloom during almost the entire year. With the exception of C. Eldorado, which must have more heat and moisture than the others, they can all be grown at a winter temperature of 55° to 60°. This may go up to 70° or a little more in the daytime, but necessitates, of course, ventilation in clear weather. It is necessary to employ two or more houses for this culture, thereby making it possible to force on or hold back certain plants for certain

special occasions, and also to prolong the blooming period of each species.

The Dendrobiums provide us many beautiful species worthy of general culture for the trade. D. formosum and D. Phalænopsis are two of the best Warm house species. The first-named, not unlike a large white Cattleya, blooms during the fore part of winter. The other one, with smaller, white, pink or rose-coloured flowers on long stems in rich profusion, blooms from October to May. It pays well to grow these two varieties in large number. D. Wardianum, with its white, yellow, brown, and rose-coloured bunches of flowers, and D. nobile, with rose-coloured blossoms, are two very distinct, useful, and desirable kinds. They need very nearly the same treatment—lots of heat and moisture during the summer, and a cool and dry place during their resting season in winter. These four are the best and cheapest for commercial purposes, although there are lots of others which may be grown with profit, for instance, D. crepidatum, crassinode, Devonianum, densiflorum, fimbriatum, thyrsiflorum, and others.

Vanda cœrulea is very useful for winter cutting, producing long branched flower stalks, with delicate lavender-blue flowers. Because of its colour it is very valuable for commercial purposes, it being the only one of that shade. The temperature in the Cattleya labiata house is just right for this Vanda, which succeeds best if planted in baskets suspended from the roof—thereby economising bench room, so much needed for other things.

Lælia anceps, autumnalis and albida, all Mexican species, are rich flowering saleable sorts, which can be grown to advantage in baskets. They demand a moderate temperature, and therefore succeed well in the coolest part of the Cattleya house.

Cymbidium eburneum gives a fine white flower of good substance and form, and blooms in rich profusion. No doubt this plant will become very valuable when better known. It has not yet been grown commercially to a very great extent. It wants a moderate, airy temperature and plenty of moisture about the roots.

Cœlogyne cristata is a very fine white flower with a yellow centre. It is said of this Orchid that it has not given full satisfaction. My experience has been that if grown rather cool, and not allowed to become too wet, it will bloom freely, and its right place is with the Cypripediums. It is valuable for table decorations, and keeps, when cut, for a long time.

The Phalænopsis family contains several splendid species, all worthy o commercial culture, and pays well when a warm, moist, and in all respects suitable house is provided. P. Schilleriana, P. amabilis and P. Stuartiana are among the best.

Lycaste Skinneri is the best of its class, and good for the local market, but easily spoiled in packing. Because of its easy culture, it has been called the " amateur's favourite."

Odontoglossum crispum gives us the most varieties for the commercial market, and is, therefore, the best. I am sorry to say that this noble species has often been found difficult to handle. It grows well on a very high elevation of the Andes, where the atmosphere is cool and damp, and seldom rises above 60° Fahr. Thus its natural climate is hard to imitate, and the plants, therefore, suffer from our hot summers. It is clear that a special house should be provided for this species. Face the house north, shade it from the sun, keep it moist, with a low temperature, and your plants will succeed admirably. O. grande is another good kind, with very large yellow and brown flowers. The market for this Odontoglot is, as yet, limited to a certain extent, but it is worthy of culture for variety. Miltonia Roezlii is a very desirable sort, for which good prices are obtained. It wants lots of moisture about the roots, and a warmer temperature than the majority of its relations. The flowers are very large and effective, almost pure white, with purple and yellow towards the bottom.

Oncidium varicosum and its varieties are all good fall flowering kinds. The flowers are produced on long, overhanging branching shoots, not unlike a gigantic Adiantum frond. O. splendidum and O. tigrinum are valuable for the late winter months, with their large yellow and brown flowers. They will, like O. varicosum, do well with the Cattleyas during their growing period, but want a long rest in a cool house when their flowering period is over.

Cypripediums are easier to propagate by division and seeds than mos other Orchids. We have at the present time only a few varieties of commercial value. C. insigne (one of the best), C. barbatum, C. callosum, C. Boxallii, C. villosum, and C. Lawrenceanum are among the best. Here is a great field open for the thoughtful and skilful hybridiser, who may be sure of success. The belief is based on results obtained in hybrids like C. × Harrisianum, C. × Leeanum superbum, C. × Morganiæ, C. × Clinkaberryanum, and lots of others. Some of these hybrids are costly in themselves, but nevertheless can always be had at a moderate price, and after a few years hundreds of growths may be obtained at little trouble and small outlay.

A noted Orchid expert once exclaimed: "Just fancy a house full of Cypripedium × Morganiæ"—which is a cross between C. superbiens and C. Stonei. Just think of it, with its long, robust stems, each one crowned with three or four indescribably beautiful flowers, and that will give us some idea of what might be accomplished with this more than interesting genus.

Although most of our Orchids, with a very few exceptions, may be grown in almost any greenhouse, it is claimed by Orchid experts that a full span house, from the north to the south, is best. It should be

constructed so that the water from the outside may easily run off, and all drip from condensation during the winter prevented. Three-quarter span houses to the south are sometimes used, but they become too hot, and more ventilation must be given. This, in turn, exhausts the moisture so necessary for successful Orchid culture.

In conclusion, I wish to say to the retail florist: Do always try to keep a few Orchids in a conspicuous place in your store, and show them to your customers, and by having different kinds from time to time, I am sure the public in general will soon become interested, and you will build up a trade equally profitable to yourself, the grower, and the flower-loving public.

LÆLIO-CATTLEYA × MANDARIN.

A FINE hybrid between Lælia crispa and Cattleya granulosa Schofieldiana (it is not stated which was the seed parent) is sent from the collection of Sir James Miller, Manderston, Duns, N.B., by Mr. Hamilton, under the above name. According to the records it ought to be a variety of Lælio-cattleya × Mylamiana, but we believe it to be different, owing to confusion in the early records. The latter hybrid was raised by Messrs. Wm. Rollisson and Sons, of Tooting, and was described by Reichenbach in 1879, under the name of Lælia × Mylamiana (*Gard. Chron.*, 1876, vi, p. 740, fig. 138). Messrs. Rollisson gave the parentage as Cattleya granulosa × Lælia crispa, and remarked that the flowers of the former were impregnated in the autumn of 1863, and the hybrid was about thirteen years in arriving at the flowering state. The pseudobulbs they described as stout, cylindrical, slightly more than a foot high, bearing in some cases a pair of stout, leathery, ovate, obtuse leaves, some eight inches long, and 2½ inches broad; in others only a single leaf, and in this state they exactly resembled the male parent, Lælia crispa. Reichenbach added that the plant might be compared with Lælia × devoniensis, except that the front lobe of the lip was nearly sessile, a character borne out by the woodcut, and just the reverse of what is seen in hybrids of C. granulosa, all of which show the markedly unguiculate front lobe of that parent. Messrs. Rollison's record of parentage appears to have been kept with praiseworthy accuracy, but it is known that about this period C. granulosa was confused with its allies in gardens, a fact which invalidates at least one other record. At all events the hybrid now sent by Mr. Hamilton does not agree with the figure named, which latter agrees so well with flowers of L.c. × devoniensis as to suggest that both were derived from Lælia crispa and Cattleya Leopoldi. The original plant of L.-c. × Mylamiana seems to have been lost sight of, but we may now consider it a

a form of L.-c. × devoniensis. It is unfortunate that there should be this confusion in the early records, but the appearance of another hybrid with the same reputed parentage compels an attempt to clear the matter up.

The present novelty is a handsome thing, most resembling C. granulosa in shape, but with longer and more acute sepals and petals, the latter attaining a length of $4\frac{1}{2}$ inches, by over $1\frac{1}{2}$ inches broad, and gracefully crisped and undulate, as in the Lælia parent. The sepals and petals are closely veined throughout with rose-pink on a paler ground, and somewhat dotted with purple towards the apex. The lip is very deeply three-lobed, as in all C. granulosa hybrids, and the side lobes are cream-white outside, also near the margin inside, the basal part being bright yellow, and the tips rich-purple crimson. The front lobe is of the latter colour, slightly variegated with a paler tint inside the lilac, crisped margin. The purple assumes a brown tint on the unguis and along the disc, the latter bearing a number of short radiating lateral veins. The face and back of the column are red-purple, and the sides and apex nearly white. The scape at present bears two flowers.

THE HYBRIDIST.

LÆLIO-CATTLEYA × BURBAGENSIS.—An interesting hybrid has flowered in the collection of Captain C. C. Hurst, Burbage, Hinckley, whose history is not exactly known, as it was purchased as an unflowered seedling. In the first place the pollinia agree with Lælio-cattleya, and there is unmistakable evidence that one parent was a Lælia and the other a diphyllous Cattleya. The lip is deeply three-lobed, and is comparable with that of C. granulosa in the long side lobes and the elongated base of the front lobe, together with its shape and granular surface. The Lælia parent appears to have been L. purpurata, its influence being apparent in the white ground colour of the side lobes of the lip, the rich purple front lobe shading off to lilac in front, and in the modified shape and colour of the sepals and petals. It may be compared with L.-c. × elegans, but has longer sepals and petals—the latter being more curved and undulated—and the colour much paler, with a longer, more deeply divided lip, all of which would be expected from the above-named parentage. The flower measures $6\frac{1}{2}$ inches across the petals, which are themselves 1 inch broad, strongly curved, and somewhat undulate and reflexed. The ground colour of the sepals and petals may be described as cream-yellow tinged with green, and dotted with purple on both surfaces, but most strongly behind, while on the petals the dots are arranged in more or less confluent lines radiating towards the margin. The side lobes of the lip are white with a purple apex, the disc deep purple, becoming spotted at the base, and

breaking up into radiating lines towards the apex of the front lobe, which is lilac in colour and minutely denticulate. The face of the column is lined and dotted with purple. The plant is rather dwarf, and produces both monophyllous and diphyllous pseudobulbs. It flowered for the first time in 1901.

CATTLEYA × LEUCOTHOE.—A new hybrid from C. granulosa ♀ and C. Walkeriana ♂, raised by Mr. E. O. Orpet, S. Lancaster, Mass., and described by him in *American Gardening* for August 9th (page 513), as follows:—Habit of plant, intermediate; scape, four to several flowered, as in C. granulosa; flowers smaller than either parent, expanding 3½ inches and very fragrant; dorsal sepal ligulate, coriaceous, 2½-in. long, ⅝-in. broad; lateral sepals 1¾-in. long, ⅝-in. broad, oblong-obtuse, curved downward; petals 1⅞-in. long, ⅞-in. broad, obovate-spatulate, undulate; all of the foregoing segments bright rose-lilac over a white ground, dotted, especially near the apices, with bright crimson; lip trilobed, side lobes 1-in. long, subfalcate, pale rose-lilac on a white ground; front lobe ¾-in. long, 1⅛-in. broad, stiff, subreniform, emarginate, obscurely papilose, rich bright crimson, throat dull crimson beneath the column, with five or more white longitudinal lines. Column oval-oblong, concave beneath, pressed down on lip, white shaded with pale green, prominently tinged with crimson around the stigma.

CATTLEYA × MOLLIS VAR. SPECTABILIS (C. Gaskelliana virginalis ♀ × C. superba splendens ♂) is also described by Mr. Orpet on the same page. It is said to favour the seed parent, except that the pseudobulbs are more slender and occasionally diphyllous. Sepals and petals broad, the latter undulate, all deep lilac in colour; lip well expanded, obscurely trilobed; front portion rich crimson, throat bright yellow, shading to white, which radiates into the crimson on front portion; a pale crimson band extends front of column to apices on side lobes. Column white, shaded with green at the base; flower pleasantly fragrant.

TWO NEW EPILÆLIAS.

IN a recent account of Sir Trevor Lawrence's fine collection at Burford, Dorking, (*Gard. Chron.*, 1902, xxxii, p. 112), reference is made to two new Epilælias. Speaking of the collection of hybrids, it is remarked that some remarkable crosses are in bloom, "notably Epilælia × between Epidendrum vitellinum and Lælia tenebrosa, the orange and purple flowers displaying both parents, but not in a manner to warrant its being grown, except as a curiosity; Epilælia ×, between L. cinnabarina and E. fucatum, is also singular." It would be interesting to know more about them.

VANDA TERES.

THE annexed illustration represents a fine group of Vanda teres from the collection of Dr. George Wilks, Ashford, Kent, and is reproduced from a photograph kindly sent for this purpose. An interesting note from Mr. A. Hutchinson, Dr. Wilks' gardener, gives particulars as to the cultural methods employed. The plants are grown in teak boxes about twelve inches deep, and always placed at the end or sides of the East Indian house, close to the glass, and facing south-west, so that they receive the greatest amount of sunshine possible in this country. This is considered one of the

FIG. 28. GROUP OF VANDA TERES.

most essential points. The compost consists of coke, and very lumpy peat, top-dressed with sphagnum, and the plants are tied up to oak stakes, the rougher the better. When in bloom the plants are removed to the Exhibition house, and water is entirely withheld for a month, to prevent the flower spotting. They will keep well in the boxes for five years, and when too tall the tops are cut off to about two feet in length, and made up afresh. One small box had one hundred and seventy-five blooms this season. Mr. Hutchinson remarks that they do not succeed well with him in pots. Dr. Wilks and his clever gardener must be congratulated on their success.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on August 5th, when the Orchids exhibited were not numerous, though including some good things.

Captain G. L. Holford, M.V.O., C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), received a Silver Flora Medal for a fine group containing Lælio-cattleya × C. G. Roebling, L.-c. × Pharos (L. tenebrosa × C. superba), L.-c. × elegans Westonbirt variety, bearing a spike of nine fine rose-coloured flowers, Cypripedium × œnanthum superbum, C. × Bryan, C. × Cleopatra, C. superbiens, C. purpuratum, Miltonia Regnellii citrina, Cattleya × Patrocinii, Sophronitis grandiflora, and others. A magnificent specimen of Vanda cœrulea, consisting of a single stem, and bearing thirty-seven leaves, perfect from base to apex, and two spikes of twelve and sixteen large flowers, all fully expanded, was deservedly awarded a Cultural Commendation.

J. F. Alcock, Esq., Northchurch, showed a dark variety of Odontoglossum Harryanum.

H. Little, Esq., Baronshalt, E. Twickenham (gr. Mr. Howard), showed cut spikes of Cattleya Mendelii, and of two fine varieties of C. Warscewiczii.

F. A. Rehder, Esq., Gipsy Hill (gr. Mr. Norris), exhibited Cypripedium × Sophie (Gowerianum × niveum), a fine hybrid having a white flower, tinged with green on the lower part of the segments, and with rose on the outer halves, and the nerves marked with rows of purple dots.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a fine group, containing Cypripedium × Chapmanii magnificum, C. × Eleanor, C. × Leander var. Hyades, C. × A. de Lairesse, C. × Lawrebel, C. × Ian Hamilton (Argus Moensii × Charlesworthii) having the dorsal sepal tinged with rose, and the lines spotted with purple, while the broad petals were rose-coloured and bearing large blackish spots; Cattleya × Hardyana, C. × Germania superba, a pretty hybrid between C. bicolor and C. Lueddemanniana, and Lælio-cattleya × purpurato-Schilleriana. A First-Class Certificate was awarded to L.-c. × Adolphus superba (L. cinnabarina × C. Aclandiæ), a charming little plant, with most of the habit of Cattleya Aclandiæ, and an erect inflorescence of several flowers, having the sepals and petals Indian yellow in colour, regularly spotted with purple-red, and the disc of the lip yellow, passing into purplish rose on the front lobe and tips of the side lobes.

Messrs. H. Low & Co., Bush Hill Park, received a Silver Flora Medal for a fine group consisting chiefly of Cattleyas, and containing C. labiata.

C. Gaskelliana, C. × Hardyana, C. Eldorado ornata with purple-tipped petals, the pure white C. E. Wallisii, C. superba splendens, and C. Harrisoniana, together with some good examples of Cypripedium niveum.

Messrs. W. Bull & Son's, King's Road, Chelsea, exhibited Cypripedium × Decia (Charlesworthii × superciliare), most resembling the former parent, but having a larger dorsal sepal more closely veined with rose.

Mr. J. Douglas, Edenside, Great Bookham, showed Lælio-cattleya × Juno Edenside variety (C. Mossiæ × L. grandiflora), said to be the reverse cross of the original form, and most resembling the Lælia parent in general character.

The Report of the Scientific Committee for the same date contains the following :—

CATTLEYA AND LÆLIA CROSS.—Mr. Douglas exhibited a plant, L.-c. × Juno Edenside var., the result of crossing C. Mossiæ with L. majalis. It is usually considered an invariable rule that hybrid Orchids betray the characters of both parents ; the present plant, though an undoubted cross, was thought to be exceptional in this respect, shewing relatively little of the Cattleya. A coloured illustration which Mr. Douglas exhibited of C. Mossiæ, together with the plant, showed a degree of yellow in the throat which was wanting in the living plant. L. majalis has a very spotted lip, but this feature was also wanting in the plant. That a cross or hybrid, although usually intermediate, may have one or other parent prepotent is well known ; but the second generation, as Dr. Masters observed, will often reveal the other parentage more completely.

DENDROBIUM DALHOUSIANUM SYNANTHIC.—Dr. Masters exhibited a specimen (received from Mr. W. Potter, Beckenham) of two flowers coherent by their ovaries and the two adjacent sepals, all the other parts being distinct.

A second meeting was held on August 19th, when there was again a small but very interesting display of Orchids.

Sir Trevor Lawrence, Bart., Burford Bridge (gr. Mr. White), showed a small group containing Cattleya × Parthenia rosea, a very fine specimen of Odontoglossum aspidorhinum, having twenty-four spikes of flowers, the sprays arching all round the plant in a very graceful manner (Cultural Commendation) ; a good example of Sarcanthus appendiculatus, a pretty little species with terete leaves and longish racemes (Cultural Commendation) : and the rare Brazilian Houlletia Brocklehurstiana (Botanical Certificate).

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), received a

First-Class Certificate for Cattleya × Lady Ingram Westfield variety (Eldorado × Dowiana aurea), a large and beautiful variety having blush white sepals and petals, and a very richly coloured lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received an Award of Merit for Lælio-cattleya × Ingramii Rosslyn variety (L. Dayana × C. Dowiana aurea), a very large and richly-coloured form.

W. M. Appleton, Esq., Tyn-y-coed, Weston-super-mare (gr. Mr. Brooks), showed Cypripedium × Phœbe (philippinense × bellatulum), C. × Eos (niveum × Charlesworthii), C. × Rolfei (bellatulum × Rothschildianum), C. × Julia (Lawrenceanum × exul), and C. × Tautzianum lepidum.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), exhibited Cypripedium × vexill-Io (C. vexillarium × C. × Io), a pretty hybrid combining the characters of the two parents, those of the former predominating.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), sent a pretty hybrid Cattleya, allied to C. × Parthenia, but paler in colour, and the lip broader.

Sir James Miller, Bart., Manderston, Duns., N.B. (gr. Mr. Hamilton), exhibited a pretty Lælio-cattleya of doubtful parentage, having the sepals and petals bronze coloured, and the front lobe of the lip bright purple.

H. Whateley, Esq., Kenilworth, showed a variety of Odontoglossum crispum called Blanche Whateley, having a white flower sparingly blotched with purple, those of the sepals confluent into a single large blotch.

Messrs. Sander and Sons, St. Albans, staged a small group containing Lælio-cattleya × callistoglossa, L.-c. × bletchleyensis, L.-c. × Magnei var. Mrs. E. Rogerson (L. tenebrosa × C. granulosa Dubuysonia), a very light form of L.-c. × elegans, Cypripedium × Mars (Io grande × Rothschildianum), and C. × William Matthews (Mastersianum × Lawrenceanum).

Messrs. Hugh Low & Co., Bush Hill Park, showed a handsome Cattleya Eldorado splendens, Cypripedium niveum, C. × Nandii, Lælia grandiflora (majalis), and a fine Lælio-cattleya × elegans.

Manchester and North of England Orchid.

A MEETING of this Society was held at the Coal Exchange, Manchester, on August 14th, when there was only a small display of Orchids.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received a First-class Certificate for Cattleya × Atalanta superba (C. Leopoldi × Warscewiczii) a fine form with bronzy purple sepals and petals and a rich crimson-purple lip.

R. Ashworth, Esq., Newchurch (gr. Mr. Pidsley), staged a small group, to which a Bronze Medal was given, the more noteworthy being several plants of Cattleya Gaskelliana alba, and a fine Cypripedium × Excelsior, the latter receiving a Cultural Certificate.

E. Rogerson, Esq., Didsbury (gr. Mr. Jones) received an Award of Merit for Cypripedium × Mrs. Preston, a pretty hybrid whose parentage was not stated.

R. Tunstill, Esq., Burnley (gr. Mr. Balmforth), exhibited a natural hybrid Cattleya which was purchased some time ago as C. × O'brieniana, but proved different, though one parent was evidently C. Loddigesii, on account of some marked resemblances in the flower.

Messrs. Charlesworth & Co., Heaton, Bradford, sent an interesting group of plants, to which a Bronze Medal was awarded. Cattleya × Germania (C. granulosa Schofieldiana × Hardyana) was unanimously awarded a First-class Certificate. A Botanical Certificate was also given to the West African Angræcum distichum, an interesting species, bearing small axillary racemes of white flowers on erect leafy stems.

Messrs. Cowan & Co., Gateacre, received a First-class Certificate for Cypripedium × tixallense superbum.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

WE have approached the time of year when growth generally should be far advanced; unfortunately the season has not been at all favourable for certain sections of Orchids, *i.e.*, Cattleyas, Dendrobiums, Lælias, and these therefore are somewhat backward in making up their growth. Where this is the case everything should be done to encourage its advancement, and in getting the same firmly matured ere the winter months are upon us. Shading will yet be needed, but only during the hottest part of the day, to prevent undue burning or other injury to the foliage. Ventilation should be as freely given as outside conditions permit, for light and air at this time of the year are most essential in ripening the newly-made growths and pseudobulbs. Less damping will also be necessary, especially towards the latter part of the day; avoid, however, letting the atmosphere become too dry.

Cool house Orchids generally have greatly benefited by the dull moist conditions that have prevailed, and where occuping a north aspect little or no shading will in future be required. Ventilation should be fully admitted, top and bottom, during the day and night, so that the plants may reap the benefit of the dewy night air. Although fire heat has been employed more or less during the present summer, on dull days and cold nights, it will be

necessary in all the other departments to keep a little warmth in the pipes at night, and in cold weather during the day also, in order to facilitate the process of ripening.

The number of flowering Orchids will now gradually increase, as we have already a goodly number of more or less conspicuous ones in flower, and a great many others are fast sending up their flower spikes. Dendrobium formosum and D. Phalænopsis have almost completed their growth and will soon send up their bloom spikes; water will be required liberally at the roots for some time to come, in fact until their flowers are past, when it should be gradually withheld, giving sufficient only to maintain the pseudobulbs in a plump condition.

Cypripediums belonging to the cool section, namely C. Charlesworthii, and the many varieties of C. insigne, are commencing to push up their flower scapes, and should have every encouragement to induce them to flower satisfactorily. C. Charlesworthii is nearly expanding its flowers, and these will open better if removed to slightly warmer quarters; the Intermediate department will be found suitable for this process.

Two very pretty Oncidiums are now in bloom, namely, O. ornithorhynchum and O. incurvum, both inmates of the Intermediate house. These, after flowering, should be given a lengthy period of rest, with sufficient water only to keep the pseudobulbs plump. A few more of this section, namely, O. tigrinum, O. Forbesii, O. crispum, and O. varicosum have nearly completed their new pseudobulbs, and are sending up their flower spikes. These should now be given plenty of light and air, in order to ripen their somewhat sappy growths, especially where cultivated in leaf soil, as this will help to strengthen the flower spikes without in any way interfering with their growth.

Vanda cœrulea, where grown successfully, will now be in its beauty, and as such it is always an Orchid to be admired. Unfortunately we do not always find it growing just to our own liking, and in a good many gardens it is given up in disgust after what is said to be a fair trial. I am well aware that to attempt to grow Vanda cœrulea near a smoky town is a very difficult matter; for one of the essential points in its cultivation is here lacking, namely, pure air. However, it is surprising what can be done in these localities in the way of plant culture, and by adopting a system of rational treatment during growth, in accordance with those of its native home—such as plenty of light and air, with plenty of moisture to counteract the drying effects of ventilation, a moderately cool dry rest after flowering, and suspending them in a light airy position near the glass—better results might be obtained.

Vanda Sanderiana is another lovely species which one seldom meets with in what might be termed the pink of condition. It will now be showing

its flower spikes in most collections, and at the same time rooting freely. The plants should be suspended near the glass in the warmest house, and should be given plenty of moisture at the roots, and in the atmosphere, until out of flower, when only sufficient will be required to keep the foliage healthy during the winter months.

In the East Indian House plants such as Saccolabiums, Aërides, Angræcums, &c., will have almost completed growth, and will need slightly less water, both atmospherically and at the root, than hitherto. Ventilate as freely as conditions will allow, and afford them plenty of light, in order to consolidate the new foliage, preventing at a later period any attacks of fungoid spots, which soon disfigure the appearance of this class of Orchid.

The long-bulbed section of Cattleyas, such as C. granulosa and its varieties, prove very useful at the present time. Their culture is not at all difficult, being quite identical with that the other inmates of the Cattleya house. When out of flower these should be allowed to gradually lapse into a resting condition, taking care not to withhold water from the roots too quickly, for they will continue to make new roots freely from the base of the newly-made pseudobulbs.

The deciduous Dendrobiums, as soon as the growths have reached maturity, should be removed to a cooler, more airy posi ion, and gradually brought to a condition of rest; any that are backward being given a good position at the warmest end of the house, so that they may reach maturity ere the winter sets in. The evergreen Dendrobiums may now have the benefit of strong sunlight, with ample ventilation, whenever these are procurable, giving water in sufficient quantity to maintain the pseudobulbs in a satisfactory condition.

Thunias have now mostly ripened their growths, and, where the foliage has dropped, should be placed in a cool, dry place and given a long rest, thus ensuring the appearance of strong breaks in the spring.

DISA GRANDIFLORA.—I find the most suitable time for potting this lovely Orchid is the latter end of September or beginning of October, for the fleshy roots have not got so far advanced in growth as to be injured by this process. Having had a good rest after flowering, this operation may be commenced wherever necessary. I prefer perfectly clean pots and crocks, this being very important, for the roots of Disas will not enter anything dirty or sour. In crocking, which should be done carefully, the crocks should be on their ends, so that the roots may ramble down between them without turning in a horizontal direction, as they will do if laid flatways. On top of the crocks place a layer of moss to prevent soil from choking the drainage. The potting compost should consist of three parts spongy peat, with bracken roots in it, a little turfy loam, with a small quantity of cow manure, thoroughly dried before using, mixing.

amongst it plenty of coarse sand and lumps of sandstone. The ingredients should be mixed well together before being used. When potting, slightly elevate the plants above the rim, for then they are not so liable to damp off at the collar, the water leaving them much more quickly. Finish off with a little sphagnum and small pieces of sandstone. After potting take them back to their winter quarters and give a good watering with tepid rain water through a fine rose, when they will require no more for several days, only to be kept moist by the syringe. Disas like to be near the glass and to receive abundance of light at all times, only shading when the sun is at all hot, and shining directly on them. When attacked with fly, fumigate with XL All insecticide, taking care that the foliage is quite dry at the time.

THEFT OF ORCHIDS IN CALCUTTA.

THE systematic theft of valuable plants from private and public gardens in Calcutta is an old standing grievance, and we are pleased to see that the Eden Garden authorities have initiated criminal proceedings against two native *malis* for the theft of five Orchids from the Plant House in Eden Gardens. Three of the stolen Orchids were Phalænopsis Schilleriana and two Phalænopsis amabilis, valued at Rs. 50. Inspector Bowen pointed out that the two accused were in no way connected with the Eden Gardens. These men were arrested in connection with a theft of Orchids from Belvedere. In the present case the stolen Orchids were last seen in the Eden Gardens on the evening of the 30th July last. These were eventually traced to Babu Dooly Chand's garden at Dum-Dum, where they had been sold to the head *mali*, Srimonto, for Rs. 50 by Umesh Chunder Bhuyia, a florist of the New Market, who had purchased the same from the two accused for Rs. 22-8. Some evidence was then recorded in the case. The head *mali* of the Eden Gardens, who was virtually the complainant in the case, said that he had duly reported the loss of the Orchids to his head Babu, who reported the matter to the police. Witness proceeded on Sunday evening to Babu Dooly Chand's garden at Dum-Dum in company with the police, Umesh Chunder Bhuyia, and the two accused. The stolen Orchids were produced by the head *mali*, Srimonto. Umesh had told witness that he had purchased the Orchids from the two accused, who had divided the proceeds between themselves. Witness added that originally the Orchids in question were purchased for Rs. 50, at Rs. 10 each, but their present value would not fall short of Rs. 100. The two *malis* were sentenced to three months' imprisonment each. The stolen Orchids were ordered to be restored to the Eden Gardens.—*Indian Gardening*.

ODONTOGLOSSUM CHIRIQUENSE.

It is interesting to find that the handsome Odontoglossum chiriquense from the collection of W. G. Groves, Esq., Holebird, Windermere, has made further progress. In July, 1898, it was exhibited in thriving condition before the Royal Horticultural Society, carrying two fine spikes, when it was awarded a Silver Flora Medal in recognition of its excellent culture (*Orch. Rev.*, vii., p. 49). It also received a Gold Medal and a

FIG. 29. ODONTOGLOSSUM CHIRIQUENSE.

Cultural Certificate from the Manchester Orchid Society in August of the following year. This year Mr. Groves remarks that the plant has excelled itself, having produced eight spikes, though one unfortunately succumbed to the attack of a snail, and another only appeared when the flowers of the rest were beginning to open. The plant was photographed, and the copies sent

show a magnificent specimen, bearing six very strong spikes, which Mr. Groves remarks were nearly three feet long, and bore an average of thirty flowers each, the individual blooms being as large as a five shilling piece. Having already illustrated the species, we reproduce our original figure, which will enable anyone to imagine what a specimen bearing six inflorescences is like. The sepals and petals are bright red-brown, and the lip yellow, but the contrast of colour is not so well shown as in the later photograph. Mr. Groves remarks that the plant is doing well, and they have recently had to enlarge the raft to four feet long. It is grown in the Cool House, in sphagnum moss, which is kept constantly wet. This suits it so well that Mr. Groves suspects it to be a bog plant in its native habitat. The plant has been grown to its present size from a small plant imported nine years ago, and Mr. Groves must be congratulated on his success in producing such a noble specimen. It may be added that the flower spikes were not allowed to remain on the plant very long after arriving at perfection, for fear that the production of so much flower might have a weakening effect. The history of the species is given at the place above cited.

OBITUARY.

H. J. Ross.—A well-known Orchidist has passed away in the person of Henry James Ross, of Poggio Gherardo, Florence, Italy, who died at his residence on July 17th last, at the mature age of 82 years. Mrs. Ross has kindly acceded to our request to furnish a few particulars of her deceased husband's career. Mr. Ross was born in Malta in 1820, and began his career in the East before he was seventeen. He passed four years at Erzeroum, and then went to Mosul, where he helped Mr. (afterwards Sir Henry) Layard to excavate Nineveh. At the close of the Crimean War he was employed by the English Government to sell many thousands of animals collected for our projected campaign in Georgia, and leaving Samsoon on the Black Sea he marched at the head of a column four miles long through Asia Minor, over the Taurus and the Antitaurus to Alexandretta on the Mediterranean. This journey excited considerable interest at the time, and was by some compared to the march of Xenophon and his ten thousand. Afterwards Mr. Ross settled in Egypt, where he remained until 1869, when he went to Italy. The account of his early life will soon be published by Mr. Dent, under the title of "Letters from the East, by Henry James Ross, 1837 to 1857."

Always passionately fond of flowers, Mr. Ross' Orchid collection began by a friend bringing him some boxes of Orchids from his woods near Mandalay, in Upper Burmah. Among these were a quantity of Vanda

Parishii Marriottiana, and Mrs. Ross believes that the first plant sold in England came from his collection. The collection grew rapidly, and at length filled five large houses, while the remarkable health and vigour of the plants, no doubt partly owing to the favourable climate, has struck several of our English Orchidists who have seen it.

The collection was formerly located at Castagnolo, Lastra a Signa, between Florence and Pisa, but about the beginning of 1889 Mr. Ross purchased the old Castello di Poggio Gherardo, which stands on a projecting spur of the lower ranges of the Fiesole Hills, some two miles east of Florence, to which the Orchids were then transferred. The collection was then computed to contain nearly a thousand species, and to be the finest ever got together in Italy, not excepting the celebrated one of Prince Demidoff, at San Donato, near Florence, which was dispersed in 1878. Some years ago a catalogue of the collection was published.

For some years Mr. Ross was a regular correspondent of Reichenbach's, and in 1882 Aërides expansum Leoniæ flowered in the collection, being dedicated by request to Leonie, wife of Mr. Louie Allan Goss, who discovered the plant in the creeks of Arracan, and sent it to Mr. Ross in the previous year. Dendrobium Dalhousianum Rossianum was also described about the same time, being dedicated to Mr. Ross, while Cœlogyne Rossiana and Peristeria Rossiana were subsequently added by the same author. In 1889 a Cycnoches in the collection produced both male and female flowers on the same pseudobulb, and was afterwards described under the name of C. Rossianum (Rolfe in *Gard. Chron.*, 1891, ix., p. 456). The male raceme is pendulous, some two feet or more long, and the flowers were once compared by Mr. Ross to "a lot of monkeys running up a rope, there being the head, the body, and the upturned tail"; and when viewed in a certain direction the resemblance is obvious enough. Two other Orchids which have been named after Mr. Ross are Lycaste Rossiana, a Mexican species, and Paphiopedilum × Rossianum, a hybrid between P. tonsum and P. barbatum. Mention of the latter reminds us that Mr. Ross has paid some attention to hybridising, and we learn that there are several hundred seedlings in the collection, which will flower in the next few years.

Mr. Ross has been a frequent correspondent and constant supporter of the *Review* since the commencement, and it is interesting to recall his notes on the culture of Bolleas, Pescatoreas, and allied plants, at page 14 of our last volume. And we may recall the beautiful Paphiopedilum × Venetia, figured at page 241, which possesses a melancholy interest as the last plant received from Mr. Ross, and in the fact that he did not live to see the reproduction. Mrs. Ross, to whom we tender our sincere sympathy, is also an ardent admirer of Orchids, and has

made water-colour drawings of many interesting plants in the collection. She is known in the literary world as the authoress of *Three Generations of English Women* and other works.

BULBOPHYLLUM HAMELINII.

ALTHOUGH known in gardens for upwards of nine years, this remarkable species has only now, we believe, bloomed in Europe for the first time, the honour resting with Mr. F. W. Moore, of the Royal Botanic Garden, Glasnevin. The earliest notice of the plant that we know of appeared in *Garden and Forest* for 1893, (page 336) and is as follows :—

"BULBOPHYLLUM HAMELINII.—This is another of Messrs. Sander & Co.'s recent introductions. It is a remarkable and distinct looking Madagascar plant, with pseudobulbs like some great flat marine shell, and leaves that are in shape, size and colour like those of Oncidium ampliatum majus; the flower stem is erect, thick as one's finger, eighteen inches long and shows as many as 150 flower seats. No description of the flowers was given, as the collector had not seen them. There is no Bulbophyllum in cultivation anything like this plant, the pseudobulbs being four inches across and pressed flat against the thick rhizome, which evidently clings tightly to the branches of trees. Whatever the flowers of this plant may turn out to be, it is certainly worthy of a place in all representative tropical collections on account of its peculiar pseudobulbs."—W., London.

The inflorescence now produced agrees well with the one described above, being stout and with the raceme bent over almost at a right angle, and measuring 4 inches long by 1½ inches broad; the rachis itself measuring 5 lines in diameter, on which the flowers are densely arranged. The bracts are ovate-oblong in shape, rather longer than the flowers at the base, but decreasing upwards, and more or less suffused with red-purple. The flowers have the typical Bulbophyllum shape, and the ovate-oblong sepals measure half an inch long, and are suffused and spotted with red-purple, the ground colour becoming paler towards the base. The subulate, acute petals are whitish, margined with dark purple-brown, and the broad fleshy papillose lip is wholly of the latter colour above, but whitish underneath. The column and its small acute teeth are white. Like many of its allies, it possesses a highly disagreeable odour. It is certainly a remarkable species, and one of the giants of the genus, an imported leaf measuring as much as 16 inches long by 4½ inches broad. In some respects it recalls the remarkable Bornean B. Beccarii, though the two species differ in numerous particulars. The latter now seems to have disappeared from our collections.

R. A. ROLFE.

ANGULOA CLOWESII.

A PHOTOGRAPH, and woodcut prepared from the same, of a remarkable specimen of Anguloa Clowesii which gained a Veitch Memorial Medal at a meeting of the Royal Botanical and Horticultural Society of Manchester, in June, 1878, is sent by O. O. Wrigley, Esq., of Bury, who writes:—The article on the successful cultivation of Anguloa Clowesii in the collection of Major Joicey, at Sunningdale Park (page 232) brings to my recollection a plant with which I gained the Veitch Memorial Medal at one of the Manchester Exhibitions many years ago. The plant, of which the enclosed woodcut gives a good idea, was grown from one or two bulbs, and was not made up at all. The photograph is the original from which the woodcut was prepared. We may supplement the note by an extract from the report of the Exhibition in question (*Gard. Chron.*, 1878, ix., p. 770):—"Anguloa Clowesii, a noble specimen, to which the Veitch Memorial Medal was afterwards awarded: this plant was fully three feet across the base, where there were nearly fifty of its rich golden cups, surmounted by a bold crown of perfectly developed leaves—the plant a picture of health and freshness, and magnificently bloomed." The plant was one of a group of sixteen Orchids which gained the first prize, and it is noted that another of Mr. Wrigley's groups, which gained the first prize in the class for nine Orchids, also contained a grand specimen of Anguloa Clowesii. We do not know the source of the woodcut, but it shows over thirty flowers, and there would be additional ones on the other side of the plant. It is certainly a noble specimen, and an example of progressive good culture, which we imagine has seldom if ever been surpassed.

MILTONIA ROEZLII WITH DIMORPHIC FLOWERS.

A PHOTOGRAPH representing "two distinct varieties of Miltonia Roezlii flowering on the same plant," in the collection of M. William Barbey, Chambésy, near Geneva, is reproduced in a recent issue of the *Gardeners' Chronicle* (1902, xxxii, p. 135, fig. 46). An inflorescence to the left shows the normal form, with a purple blotch at the base of the petals, while one to the right is destitute of these blotches, and appears to represent the variety alba. There appear to be two growths, and if these have been derived from one original one the case is very interesting. Its history, however, is not stated. One is inclined to ask, are varieties constant? but if a small piece of the two forms had been accidently potted up together a similar effect would be expected, and we have seen such cases among Orchids. We should like to know of its behaviour next year.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, on the 2nd and 23rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 11th. The Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

A fine flower of Lælio-cattleya × elegans Broomeana is sent from the collection of Joseph Broome, Esq., Sunny Hill, Llandudno. It is one of the best dark coloured forms known, the sepals and petals being of a rich dark purple, slightly paler at the base, and the front lobe of the lip of a still darker tint, and nearly two inches broad, while the side lobes are creamy white with the reflexed tips of the deepest richest purple.

A remarkable flower of Cattleya Leopoldi is also sent from the same collection, the parts being reduced to two sepals and a pair of lips, alternating with the sepals, and enfolding the column which is also abnormal. A similar dimerous form has previously been recorded in two or three other species.

A two flowered inflorescence of the pretty Lælio-cattleya × Issy (L. tenebrosa × C. Leopoldi) is sent from the collection of Sir James Hamilton, Manderston, Duns, N.B., by Mr. Hamilton. It most resembles the latter parent in shape, but that the sepals and petals are longer, and more acute, with the petals somewhat undulate. The colour of these organs is fairly intermediate, with a trace of the Leopoldi spotting, while the side lobes of the lip are white, tinged with lilac, and the front lobe and disc of a clear purple crimson. It is one of Messrs. Charlesworth's hybrids, and was described at page 303 of our last volume.

An interesting but puzzling flower is sent from the collection of R. Tunstill, Esq., of Burnley, by Mr. Balmforth. It was purchased last year as Cattleya × O'Brieniana, but proves to have much larger side lobes. C. × O'Brieniana is a supposed natural hybrid between C. dolosa and C. Loddigesii, but Mr. Tunstill's plant has the side lobes almost or quite as large as in the last named, though the flower differs in other respects. The pollinia seem to be those of Cattleya proper, but we do not see what combination of species would yield such a plant. A hybrid from C. dolosa should show more or less dwarfed side lobes to the lip, also a dwarfed habit, and whether the latter applies to the present plant we do not know.

It would be interesting to know the district it came from, and the species with which it was imported, as this might furnish some further clue to its identity.

A fine three-flowered inflorescence of the handsome Paphiopedilum × Schillianum (P. × Gowerianum × Rothschildianum) is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. It is finely developed, the dorsal sepal being 2½ inches broad, and the prettily spotted petals 4 inches long.

MENDEL'S "LAW OF INHERITANCE."

WITH respect to our article on the above question (page 236), an esteemed correspondent points out that Weldon's objections to Mendel's results on the ground of neglect of ancestry are invalid, for Mendel not only tested the constancy of the kinds with which he worked for two years beforehand, but also continued the tests throughout his researches, as a sort of "control experiment." And with respect to the alleged liability of hybrids to revert to parental characters, it is pointed out that the said reversion is not complete, or in its entirety, but only in respect of one of a pair of opposed characters; and a species is made up of many characters. This makes the specific character entirely subordinate to the unit character, whatever that may be, and our remarks were made with regard to the crossing of species as a whole, not of specific characters only. M. Peeters' hybrid, which raised the question, seems to have reverted in all its characters, and the argument was that this was inexplicable by Mendel's Law. The subject is clearly in its infancy.

JAVA VANILLA.

CONCERNING the profit on the cultivation of Vanilla on a small scale, Mr. Ligtvoet, of Java, gave some interesting information at the Annual Meeting of the Soekaboemi Agricultural Society. He had grown vanilla on a small piece of ground measuring 2¼ acres; the yield was 172lbs. The parcel of vanilla was consigned to Amsterdam, and sold there at an overhead price of 15f. per kilo. (11s. 3d. per lb). The total net proceeds, after allowing for loss of exchange, were £82 11s. 4d., and as the expenses in Java had amounted to £2 7s. 2d., the net profit obtained was £80 4s. 2d. The author considers that the cultivation of vanilla in Java would be remunerative for the small grower. The difference in the price

paid for Bourbon vanilla as compared with that grown in Java, is due chiefly to the finer aroma of the former, and also to the fact that parcels of Bourbon vanilla are always of equal quality.—*Indian Gardening*.

ORCHID PORTRAITS.

CATTLEYA × WAVRINIANA WIGAN'S VAR.—*Journ. Hort.*, 1902, p. 97, with fig.

CYPRIPEDIUM × HYBRIDUM FRAU GEHEIMRAT BORSIG.—*Gartenflora*, 1902, p. 393, t. 1501.

CYPRIPEDIUM × LEBAUDYANUM.—*Amer. Gard.*, xxiii., pp. 385, 387, fig. 90.

CYPRIPEDIUM × SVEND BRUN.—*Amer. Gard.*, xxiii., p. 385, fig. 89.

LÆLIO-CATTLEYA × ADOLPHUS SUPERBA.—*Journ. of Hort.*, 1902, xlv., p. 169, with fig.; *Gard. Chron.*, 1902, xxxii., p. 111, fig. 37.

LÆLIO-CATTLEYA × APHRODITE KING EDWARD VII.—*Gard. Mag.*, 1902, pp. 530, 531, with fig.

LÆLIO-CATTLEYA × BROOMFIELDENSIS.—*Journ. Hort.*, 1902, xlv., p. 121, with fig.

LÆLIO-CATTLEYA × CANHAMIANA ALBA.—*Journ. Hort.*, 1902, xlv., p. 145, with fig.

LÆLIO-CATTLEYA × MADAME MARGUERITE FOURNIER.—*Rev. Hort.*, 1902, p. 360, with fig.

MILTONIA ROEZLII (with dimorphic flowers).—*Gard. Chron.*, 1902, xxxii., p. 135, with fig.

NANODES MEDUSÆ.—*Amer. Gard.*, xxiii., p. 483, fig. 105.

ONCIDIUM VARICOSUM CHARLESWORTHII.—*Gard. Mag.*, 1902, pp. 566, 567, with fig.

STANHOPEA LOWII VAR. AMESIANA.—*Journ. of Hort.*, 1902, xlv., p. 193, with fig.

CORRESPONDENCE.

(*Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.*)

T.S.H. Dendrobium pulchellum, the true plant—more generally known under its later name of D. Dalhousianum—and a good average form.

F.L. Unavoidably deferred till next month.

E.W. Cattleya Loddigesii, typical.

Photographs received, with thanks.—J.W.A., Dr. C.

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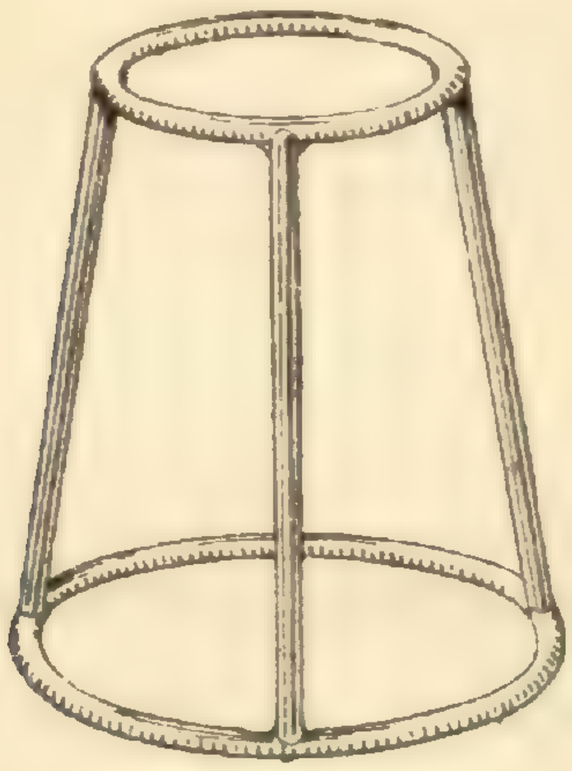

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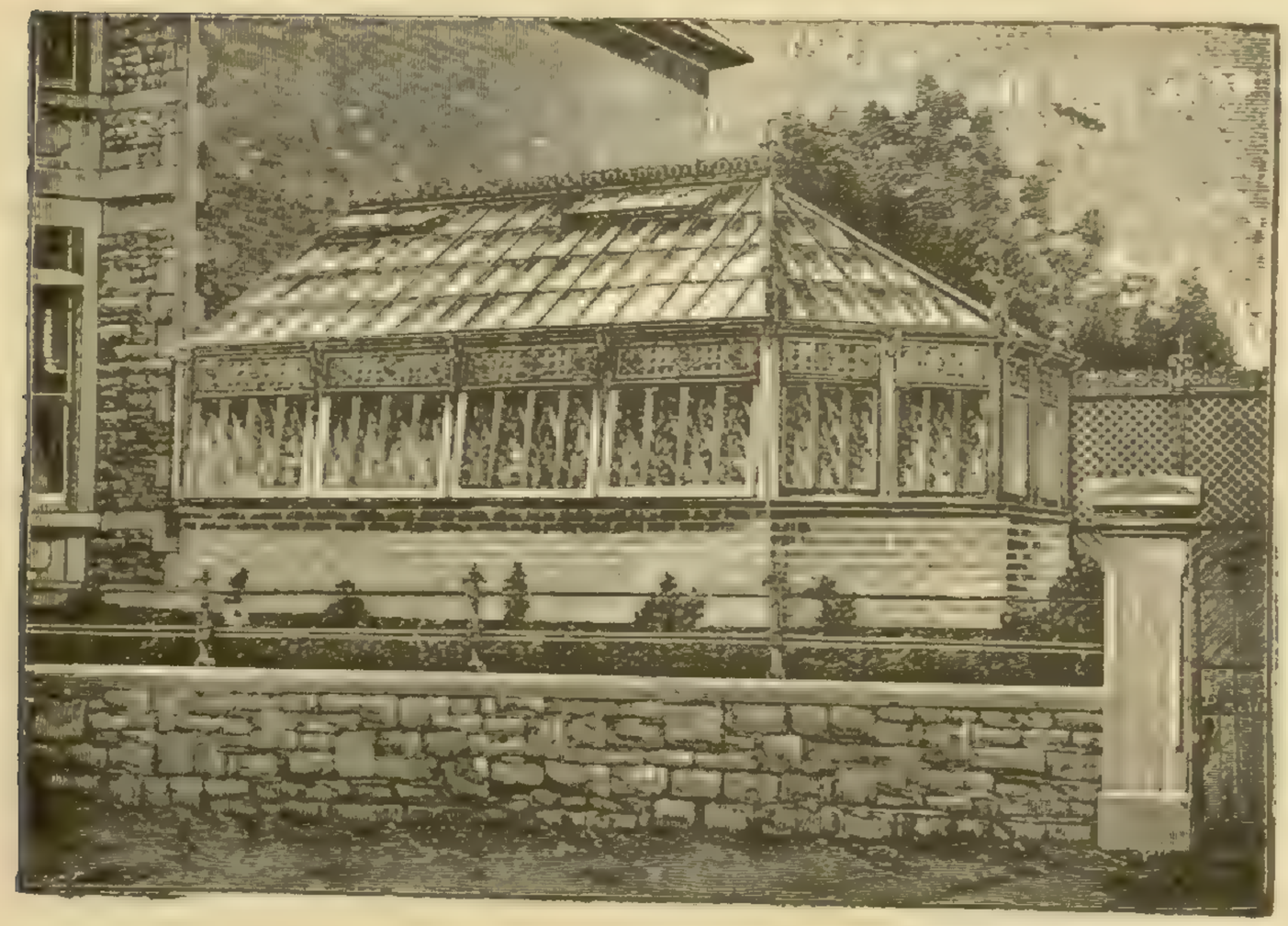

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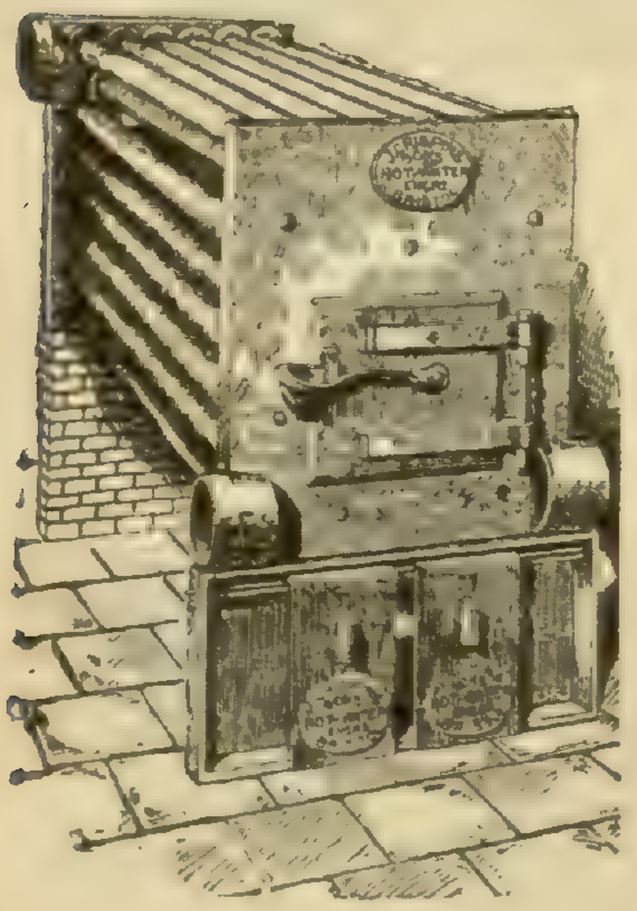

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *OCTOBER*, 1902. [No. 118.

DIES ORCHIDIANI.

EXAMPLES of progressive good culture are always interesting, and some remarkable cases have recently been noted in the *Review*. Mr. Wrigley's specimen of Anguloa Clowesii, bearing nearly fifty flowers, as mentioned at page 285, which gained the Veitch Memorial Medal in 1878, must surely have created a record which has not since been surpassed, though this is one of the species that used to be exhibited in fine condition years ago, when specimen Orchids were more the fashion. And it is satisfactory to find that the custom of growing such plants is not altogether out of vogue, for Major Joicey's specimen, mentioned at p. 232, has progressed from a small plant until it has produced an aggregate of thirty-three flowers, and Mr. Thorne expresses the determination to grow it on until it produces fifty flowers, and then exhibit it at the R.H.S. And we may not have long to wait.

And we have another example in a group which does not so readily lend itself to the production of such specimens. The photograph of Mr. Groves' noble specimen of Odontoglossum chiriquense, bearing six spikes, each nearly three feet long, with an average of thirty flowers each, ought to have been reproduced, that all the world might see it, though the earlier picture shows what that plant has done since 1898. And it seems that no less than eight spikes were actually produced. The plant now requires a block four feet long, and what it will require in a few years if it progresses at this rate can only be guessed.

All the plants that I have mentioned were grown on from small pieces, and such examples form object lessons, especially when the subjects are not particularly tractable under ordinary conditions. But it is clear that we cannot see them very frequently at our Shows, for a few of them would fill a Pickford's van. But they might more often be photographed, and photographic illustrations are now so perfect that we might secure permanent

records of some of them, as in the case of Mr. Brooman White's remarkable Cattleya Mendelii, to which I alluded last month. I would commend this idea to some of our successful growers.

It has been remarked that such specimens are less frequent than they were some years ago, and one of the chief causes I have indicated above. They are too big, and take up too much room. It is not a question of the decline of cultural skill, but rather that "elephants," as they have been termed, have gone out of fashion. There are so many really fine Orchids in cultivation that one cannot include everything, except in a very large collection, let alone grow them on into specimens; hence it is that many modern collections are largely made up of comparatively small plants, which flower freely within a rather limited space. But the majority of Orchids are more effective when grown on into well balanced specimens, and when this can be done without taking up too much space it represents an ideal condition of things, as is admitted by some of those who make little attempt to carry it into practice. Apart from the pleasing sensation called forth by such fine examples of good culture, there is the enhanced effect produced by masses of similar flowers seen from various positions at the same time.

Some similar effects are often produced by grouping, when two or three plants of the same kind are flowering together, the combined effect being often far superior to that of scattering the plants among a number of other diverse kinds. And we have seen very beautiful examples of what may be termed imitation specimens, produced by temporarily placing three flowering plants of the same kind in a large deep pan, and then filling the interstices, and surfacing with moss. Some people might object to such deception, but if done only for the sake of enhanced effect, and not used for any other purpose, there should be no objection to the practice.

Speaking of considerations of space, in connection with the production of specimen plants, leads me to remark that there are many Orchids of moderate size which take up very little room, even when grown on into "specimens." Such plants as Sophronitis grandiflora, Lælia pumila and Dayana, Odontoglossum Rossii and Cervantesii, and a number of those little gems often termed "Botanical Orchids," seldom give trouble in this direction, and it is only when grown in masses that some of them can be termed really effective. Fortunately there are numbers of such plants, and I believe that this is one of the reasons why Orchids have become so popular. Their quaint shapes, beautiful colours and markings, and the possibility of having a succession of bloom throughout the year, are all great points in

their favour, but the fact that all this can be accomplished in a house of moderate dimensions, with suitable divisions for the warmer and cooler kinds, is a strong additional factor. Certain species which are showy enough in themselves are not very popular on account of the space that they require.

A combination of several qualities seems necessary to make what may be termed a good garden plant, but such plants are fortunately common among Orchids, and now that they have been taken so completely in hand by the Hybridist the number is rapidly increasing. Hybridisation furnishes the opportunity for selection, first among the species to be operated with, and afterwards among the offspring, and striking as are the results already obtained, it is quite evident that the question is still in its infancy. He would be a bold man who would venture to prophesy what our collections will be like in another generation. But with such signs of progress on every hand it is at least possible to foresee an increased popularity for this beautiful class of plants.

While speaking of progress in hybridisation let me add that I hope an effort will be made to keep our records clear. I notice in a recent report that the Manchester Orchid Society gave an Award of Merit to a plant "whose parentage was not stated." The Society has a rule that "Members are requested to state Parentage of all Hybrid Orchids submitted for adjudication when possible, otherwise they are liable to disqualification." It is no doubt difficult to pass over some beautiful plant which may have been discovered as a stray seedling, or whose origin is involved in doubt for any other reason, but in such cases an effort should be made to solve the parentage by some other means. In the particular case mentioned, the Committee do not seem to have made any suggestion; at all events none is recorded, and it is difficult to see how anyone else who raises the same plant can succeed in identifying it, without either description or record of parentage. Such plants are apt to get lost sight of, unless the question is cleared up later, which is often possible.

We are getting too many of these doubtful plants, and I am inclined to suggest that when they flower again they should be sent to some expert for comparison; and perhaps it would be as well to include a few others whose looks rather belie the parentage ascribed to them, for I am told that there are many such, and that the number tends to increase. I hope not, for if such is the case it must be rather bewildering to those who keep our records.

ARGUS.

CATTLEYA × DAYANA.

It is well known that several species of Cattleya grow more or less intermixed in the province of Rio de Janeiro, and that some of them hybridise together ; and the remark must now be held to apply to C. Forbesii and C. guttata. There is a drawing in the Day collection (li., t. 35), dated August 7th, 1886, of which Mr. Day remarks :—" From a plant of my own, bought of Messrs. J. Veitch and Sons, in flower. I considered it a spotted variety of C. Forbesii, but have sent a sketch of it to Prof. H. G. Reichenbach. Bulbs 8 to 10 inches long, by ¾ broad at upper end, which is the broadest, compressed, and sulcated in age, covered with whitey brown sheathing scales when young. Leaves two, 6 × 2½ inches, coriaceous." In the index to the volume occurs the note " Forbesii guttata ?" evidently indicating a suspicion that it was a hybrid between these two species. And we could scarcely have clearer evidence of its descent. The lip is almost identical with C. Forbesii in shape, colour, and the very characteristic veining, except that there is a slight interval between the front and side lobes. The sepals and petals, however, are almost those of the old C. guttata, but dull yellow in colour, and copiously spotted with brown. The leaves also closely resemble those of the latter species. In short, it combines the characters of these two very distinct species in the most unmistakable manner ; and both are common in the Rio district. It is fortunate that evidence is slowly accumulating which will enable a very interesting question to be cleared up.

R. A. Rolfe.

MILTONIA × COGNIAUXIÆ VAR. BICOLOR.

A very fine example of this handsome natural hybrid is flowering in the Kew collection. It was sent from Brazil, by M. Binot, some time ago, and proves identical with one sent to Kew for determination by Mr. Thomas Spencer, Goodrich Court, Ross, in July, 1891, but was not described until last year (Rolfe in *Orch. Rev.*, ix, p. 294). It is evidently a natural hybrid between the typical M. spectabilis and M. Regnellii. The plant most resembles the former in general habit, but the spikes are elongated up to 1 to 1½ feet long, and bear a number of lanceolate bracts on the peduncle, as in M. spectabilis, with the flowering bracts also 1½ to 1¾ inches long. The individual flowers, however, more nearly approach those of M. Regnellii, and measure nearly three inches across. The sepals and petals are straw yellow, slightly tinged with purple at the base; and the lip light purple at the base, shading off to lilac, and finally yellowish in front. There are five spikes, the best of which bears five flowers. It is a very handsome form, and the combination of characters is such as to leave no doubt about its origin.

R. A. Rolfe.

DENDROBIUM REGIUM.

A NEW Dendrobium from Lower Hindustan is described by Dr. Prain in the recently issued part of the *Journal of the Asiatic Society* (lxxi, p. 80), under the above name. It is said that "among the Orchids that flowered in the Royal Botanic Garden, Calcutta, during 1901, one of the most beautiful was a Dendrobium that differs from any of the Indian species hitherto described. To be assured that the plant is in reality a previously unknown species a drawing from life has been compared with the material and drawings preserved in the great national collection at Kew. The species is very nearly related to D. nobile, Lindl., but is quite distinct from any of the known varieties of that somewhat variable species. In the nearly uniform coloration of the sepals and petals (though not in the colour itself) it approaches most closely the form of D. nobile distinguished and figured by Lindley (*Sertum*, t. 18) as D. cœrulescens. That plant, however, has a lip with purple throat and yellow margin; the present species has a cream-coloured tube and throat, with a magenta limb coloured and marked like the petals and sepals. The lip of D. regium is, moreover, narrower than in any form of D. nobile, and is not pubescent." A technical description is given. We hope to see it in flower in England before long.

LIPARIS TRICALLOSA.

UNDER the name of "Metroschillus sp." (the name is printed twice, though we suspect Microstylis was originally written) we find in *American Gardening* for September 13th a figure of the above interesting plant (p. 595, fig. 126), with the following note:—"Through the courtesy of Mr. Thomas Knight, representing L'Horticole Coloniale, Brussels, Belgium, we are able to present the accompanying picture of a new pretty species of an obscure group of Orchids. The flowers are purple, with darker stripes, and are characteristically described as resembling a small tortoise or a turtle. The species shown is unidentified; it was introduced last year from Borneo. The flowers are produced from July until September, and the spikes last about a month.

"There are a number of most interesting plants in these obscure, lesser known genera of the Orchid family, all more or less curious and fascinating. They are not so showy as the more popularly known kinds of Cattleyas, &c.; yet to the Orchid enthusiast who grows Orchids because they are Orchids, these quaint members of the family always appeal with much force."

It will interest our esteemed contemporary to know that the plant is Liparis tricallosa, described by Reichenbach as long ago as 1882, and recently figured in the *Botanical Magazine* (t. 7804).

CALANTHE × ROLLISSONI.

THIS is one of the older, and still imperfectly known hybrids. Hansen (*Orch. Hyb.*, p. 82), citing from Bergman's *Orchidées des Semis* (a work inaccessible to us), briefly records it as raised from Calanthe veratrifolia × Masuca, by Messrs. Rollisson, of Tooting, adding "nous ne savons si cette variété vit toujours." We have not discovered a further record, but there is a drawing and note in the Day Collection of Drawings (lii., t. 71) which may throw further light on the question. This drawing, which was made in June, 1887, is labelled Calanthe Mylami, and the plant is noted as a fine hybrid raised by Mr. Mylam, foreman of the Orchid department at the old nursery of Messrs. Wm. Rollisson & Sons, at Tooting. It is said to be much in the way of C. × Dominyi (which was also in bloom in the collection), except that the latter was much paler in colour. C. × Dominyi is called a hybrid of Veitch's between C. veratrifolia and C. Masuca, and of C. Mylami it is remarked :—"The parents are no doubt the same, but probably reversed." And Mr. Day adds :—"It was raised many years ago, but I cannot find any notice of it in any publication in my possession." From these facts it seems highly probable that C. × Rollissoni and C. × Mylami represent the same hybrid, or at least forms of the same, but it should be added that C. × Dominyi is different, its parentage being C. Masuca × furcata, the latter an ally of C. veratrifolia, but quite distinct. C. × Dominyi was also painted by Mr. Day at the same time, and affords a useful basis for comparison. C. × Mylami has rather broader sepals and petals, which are somewhat darker in colour. The lobes of the lip are distinctly broader, the divisions of the front lobe being nearly twice as broad, and the colour red-purple instead of light purple, while the spur is stouter, in fact slightly clavate, and not distinctly bidentate as in Dominyi. Thus it is rather more like C. Masuca than even C. × Dominyi is, and in each case the white colour of the other parent is obliterated.

ORCHIDS FROM MANDERSTON.

SEVERAL very beautiful Orchids are sent from the collection of Sir James Miller, Bart., Manderston, Duns, N.B., by Mr. Hamilton. Sophro-cattleya × Chamberlainiana, represented by a two-flowered inflorescence, is a really charming thing, in which the characters of Sophronitis grandiflora and Cattleya Harrisoniana are well combined. The flowers are now 3¼ inches in diameter, and the colour bright carmine-rose, with a whitish disc, the yellow in this particular form being very little developed. Lælio-cattleya × Mandarin, described at page 270, is represented by a fine

four-flowered inflorescence. Mr. Hamilton now states that Lælia crispa was the seed parent, but the plant is quite like C. granulosa in habit, with the pseudobulbs 12 inches high. The modified shape of the flower, however, and especially the crisped petals, show the Lælia influence very strongly. The beautiful Cattleya × Chamberlainiana is represented by a five-flowered inflorescence, the flowers having the general shape of C. Leopoldi, and the colour being quite unique. The petals are of an almost indescribable shade of coppery brown, and the sepals rather paler, with a few darker spots on each, while the lip is of a nearly uniform fiery crimson. The influence of C. Dowiana is chiefly seen in the modified shape, but the yellow veining of that species is clearly seen on the infolded side lobes of the lip, radiating from the disc. C. × Germania (C. granulosa Schofieldiana × C. × Hardyana) is another very beautiful thing, having the front lobe of the lip beautifully marbled with bright rosy crimson and white, and the rest of the flower of a fairly uniform shade of bright rose. The flowers are very large, and the petals 1¾ inches broad. C. × Clytie var. Hilda is a pretty little hybrid combining the characters of C. Bowringiana and C. velutina, the latter being most prominent in shape and the former in colour. One flower is remarkable for having no less than nine sepals and petals—or rather it looks like one flower, because it has a single lip, but closer examination shows the pedicel and column to be double, though the fusion is complete to the apex, and as the rest of the segments are perfect it looks like a double flower. The remaining hybrid is evidently a form of Lælio-cattleya × callistoglossa, though it was purchased as a seedling of different parentage. It has the characteristic shape, and the two eye-like blotches on the richly-coloured lip are well developed. They form a very charming group, and are without exception very finely cultivated.

LÆLIA BOOTHIANA.

THIS distinct and handsome Lælia has the character of being a shy bloomer, and the following note on the subject by "H. R. R." appears in the *Journal of Horticulture* for September 11th (p. 237):—One of the most singular Orchids I know as regards culture is Lælia lobata, or Boothiana, as it is sometimes called. Pot it regularly; treat it well in all respects of heat and moisture, and other cultural details, and as a result it will grow everlastingly, but as for a flower you will never see one. Starve it, by letting it grow over the sides of the pot or basket; bake it in the summer sun, and be not too particular about its winter treatment, and most likely you will be rewarded by its lovely flowers in plenty. And they are very beautiful in their rich rose and purple tints, refined and delicate, yet making a brave show.

PAPHIOPEDILUM CHARLESWORTHII AND P. SPICERIANUM.

Do these two species grow anywhere intermixed? The question was discussed last year in connection with the reputed natural hybrid known as Cypripedium Fred. Hardy (*Orch. Rev.*, ix, pp. 369-371, fig. 52). The conclusion arrived at was that we have as yet no evidence that the two grow intermixed. But the following has an important bearing upon the question. Some time ago some imported P. Charlesworthii were purchased at a Sale at Messrs. Protheroe and Morris's Rooms for the Kew collection, and in potting up, some of the larger clumps were divided, making some dozen and a half plants altogether. The majority are now in flower, but singularly enough two of them prove to be P. Spicerianum. Without knowing the history of the importation one could not say positively that the plants actually grew intermixed, but at all events the facts are significant in connection with what has been recorded before. It would be interesting to hear of any other evidence bearing on the question.

R. A. ROLFE.

LISTROSTACHYS BRACTEOSA.

A CURIOUS and interesting Mauritian Orchid has just flowered in the Kew collection. It was sent from the Mauritius Botanic Garden, in 1897, by the late Mr. W. Scott, and is apparently identical with Angræcum bracteosum (Balf. f. & S. Moore in *Journ. of Bot.*, 1876, p. 293) a species collected in Bourbon by Dr. I. B. Balfour during the Transit of Venus Expedition in 1874, and hitherto known only from dried specimens. It has also been described under the name of Saccolabium squamatum (Frapp in *Cordemoy Fl. Reunion*, p. 195). An examination of the pollinia, however, shows that the plant belongs to neither of these genera, but to Listrostachys, there being a single broad gland, to which the pollinia are separately attached by a pair of short stipes. The pollinia are broad, and nearly triangular, and, apart from their attachment the whole pollinarium strongly recalls Cymbidium. The stem is very short, and bears six oblong arching leaves, six to nine inches long, with unequally lobed apex, and a short axillary raceme of three very fleshy flowers. The ovary is short, very stout (being half as broad as long), and enclosed within a large cucullate roundish oblong bract; and the segments are very pale yellowish green. The sepals are broadly ovate, acute, keeled, and nine lines long; the petals rather smaller; and the lip consists of a short broad sac, with a short expanded limb, and an acute somewhat recurved apex. It was no doubt the latter character that caused it to be referred to Saccolabium, for it looks very different from most other members of the Angræcum group.—R. A. ROLFE.

CATTLEYA × GERMANIA VAR. BURBAGENSIS.

THE ANNEXED illustration represents a form of the beautiful Cattleya × Germania (granulosa Schofieldiana × Hardyana), from the collection of Capt. C. C. Hurst, Burbage, Hinckley, which received an Award of Merit from the Manchester and North of England Orchid Society on September 11th. It is a seedling from the original batch raised by Messrs. Charlesworth and Co., and it may be added that the original form received an Award

FIG. 30. CATTLEYA × GERMANIA BURBAGENSIS.

of Merit from the R.H.S. on September 10th, 1901. As will be seen by the figure, the plant has largely retained the character of the seed-parent, which may also be said of the flower, with the single exception of colour, though the shape is also somewhat modified. In colour C. × Hardyana is altogether dominant, for the sepals and petals of the hybrid are bright rosy purple, and the front lobe of the lip is veined throughout with deep purple-crimson on a pale ground, rendering the flower extremely handsome. As regards structural details nothing further need be said, but, the figure

being much reduced, it should be added that the flowers attain an expanse of nearly six inches, and that the petals are 1½ inches broad, the front lobe of the lip being still broader. This plant is now flowering for the first time, and has probably not yet attained its full development. The varietal name was given by the Manchester Committee, to distinguish it from the one exhibited by Messrs. Charlesworth at the previous meeting, but we are unable to say how it differs from the original form. It is certainly a very beautiful hybrid.

HISTORY OF ORCHID CULTIVATION.

(*Continued from page* 112.)

THE *Botanical Register* continued to be the medium in which most of the novelties were published, and its pages for 1843 contain several interesting additions to the ranks of cultivated Orchids. Among them was the remarkable Cycnoches pentadactylon (t. 22), which first flowered with Mr. Veitch, of Exeter, in March of the previous year. Its distinctness from C. maculatum was at first doubted, on account of what was then thought to be the sportive character of the genus, but the appearance of a second plant, obtained by Messrs. Loddiges from Brazil direct, induced Lindley to admit it as a good species.

About this period Cycnoches, and the allied genus Catasetum, were attracting much attention by their supposed sportive tendencies, and at page 77 of the "Miscellaneous Matter" to this volume we find a figure of a remarkable inflorescence of a species of Cycnoches, from the collection of R. S. Holford, Esq., of Westonbirt, Tetbury, which was described as bearing flowers of "C. ventricosum and C. Egertonianum *intermixed*" (the italics are Lindley's). The one previously described and figured by Mr. Bateman (*Orch. Mex. and Guat.*, t. 40) had borne the two kinds on separate inflorescences. Mr. Holford's plant had been obtained from Messrs. Rollisson, of Tooting, as C. ventricosum, and was exhibited at a meeting of the Horticultural Society. The inflorescence bore five flowers, and Lindley remarked that the lowermost flower was more Egertonianum than ventricosum; the second almost wholly ventricosum, but its lip here and there raised into warts; in the next the purple of Egertonianum was displacing the green of C. ventricosum; while in the two remaining flowers the transformation was complete. "With such cases as this" he continued, "all ideas of species and stability of structure in the vegetable kingdom are shaken to their foundation." Had he known that the two kinds of flowers were the two sexes of a single species, and that the green ones were not C. ventricosum at all, his remarks would have been very different.

Clowesia rosea (*Misc.*, p. 25, and t. 39) was a supposed new genus of the same group, which was dedicated by Lindley to the Rev. John Clowes, of Broughton Hall, Manchester, "a most zealous cultivator of Orchidaceous plants." It is a native of Brazil and flowered in Mr. Clowes' collection, and afterwards with the Duke of Northumberland, at Syon House. It is now known to be a Catasetum.

The remarkable Mormodes luxatum was figured at t. 33, from a plant which flowered in the collection of G. Barker, Esq., of Birmingham, in the previous year. It was collected in the neighbourhood of Valladolid, Mexico, by Mr. Ross, and was described by Lindley as a most extraordinary plant, of large size, of stately habit, with a very delicious fragrance, although powerful; but with no brilliant colours to render it what we call handsome; the flowers being pale lemon colour, fleshy, rather globular, but so distorted by the complete dislocation of all the parts that it would be difficult to ascertain their real nature, if it were not for the token given by the labellum.

Dendrobium taurinum (t. 28) is a Philippine species which was sent by Cuming to Messrs. Loddiges, of Hackney, who flowered it in the previous October. It is a stately species belonging to the section Spathulata. D. aqueum (t. 54) also flowered with Messrs. Loddiges in the previous November; D. Ruckeri (t. 60) with S. Rucker, Esq., at Wandsworth, and D. sanguinolentum (t. 6) with the Duke of Northumberland at Syon House.

Peristeria Humboldti (t. 18) flowered for the first time in the collection of John Wilmore, Esq., of Oldford, Birmingham, in March, 1842, and received a Silver Medal from the Horticultural Society in the following month. It had been received from Venezuela three years before. Shortly afterwards it was referred to Acineta. Oncidium bicallosum (t. 12) is a handsome Guatemalan species which flowered in the collection of James Bateman, Esq., at Knypersley, and O. bicolor (t. 66) bloomed with Messrs. Loddiges.

In the Miscellaneous Matter we find descriptions of the fine Brassia brachiata (p. 4), which flowered with Messrs. Rollisson of Tooting; Odontoglossum constrictum (p. 17), from S. Rucker, Esq., and the Rev. J. Clowes; the fine Lissochilus roseus (p. 25), from S. Rucker, Esq. (it is figured at t. 12 of the succeeding volume); Aërides virens (p. 41), from Messrs. Loddiges; the ivory white Oncidium candidum (p. 56); Masdevallia floribunda (p. 72), from John Rogers, Esq., of Sevenoaks; and various other interesting things.

The *Gardeners' Chronicle* for 1843 contains, at page 503, an account of a Sale of Orchids at Stevens' Rooms, in which the following prices are mentioned, Barkeria spectabilis, £6; a fine specimen of Cattleya Skinneri, £4; Dendrobium Kingianum, £4 10s.; Epidendrum Stamfordianum,

£4 10s.; Lycaste Skinneri, £4; and several Sobralia macrantha, £6 to £26 5s. each. And among other things we find Robert Fortune describing the beneficial effects of a lower temperature for Orchids, as practised in the Horticultural Society's Garden, the essentials being a cooler temperature with plenty of moisture.

Cymbidium Devonianum was described and figured for the first time in *Paxton's Magazine of Botany* for 1843 (t. 97). It was discovered on the Khasia Hills by Gibson, and sent to Chatsworth in 1837, where it flowered in the spring of 1843, and was dedicated to the Duke of Devonshire. Gibson found it growing on the trunks of decayed trees, and in the forks of the branches, where some vegetable matter had collected.

Among the striking novelties which appeared in the *Botanical Register* for 1844 we may first mention Anguloa Clowesii (Misc., p. 26). Lindley remarked:—"At last a genuine species of the genus Anguloa, which has hitherto puzzled everyone, has made its appearance, in the collection of the Rev. J. Clowes, of Broughton Hall, near Manchester, who obtained it from Linden's Columbian collections. It is indeed a noble plant. The flowers are four inches in diameter, of a clear lemon yellow, with a pure white lip." It flowered in March, and in the following month a second species appeared in the collection of G. Barker, Esq., of Birmingham namely the original A. uniflora, which had not hitherto been seen in cultivation. It was figured at t. 60, and A. Clowesii at t. 63, when the history of their introduction is thus given by Lindley:—"By the enterprise of a few English gentlemen, who had the spirit to defray the cost of a collector in the rich country once known as the kingdom of New Granada, has one of the greatest botanical puzzles been at last obtained. Mr. Barker's species was figured in the last number, that before us is from Mr. Clowes, and a third species, with spotted flowers, still undescribed, has blossomed with Mr. Rucker, all of whom were the supporters of Mr. Linden's expedition." This third species was A. Ruckeri, which was figured at t. 41 of the volume for 1846.

A new Odontoglossum appeared at t. 39, namely O. læve, and it is said that both Mr. Skinner and Mr. Hartweg found this plant abundantly in Guatemala and sent it home to their friends, so that it was by no means rare in collections. The drawing was made in the Horticultural Society's garden, in May, 1842.

Another interesting novelty was Angræcum pellucidum (t. 2), which flowered with Messrs. Loddiges in the previous November, and of which Lindley remarks:—"We lament to see how little justice our artists have been able to do to this beautiful plant, whose flowers are as delicate and transparent as if they were flakes of snow fixed by frost in the very act of melting."

We may also mention Bulbophyllum macranthum (t. 13), a singular plant imported from Singapore by Messrs. Loddiges, who flowered it in March, 1844; Aërides virens (t. 14), a Javan species which flowered with Messrs. Loddiges in the previous year; Lacæna bicolor (t. 50), sent to the Horticultural Society, from Guatemala, by Mr. Hartweg; and Epidendrum verrucosum (t. 51), which flowered with Messrs. Loddiges, and afterwards proved identical with E. nemorale.

The Miscellaneous Matter to this volume contains descriptions of Lælia virens (p. 1) a Brazilian species which flowered with Messrs. Loddiges; Warrea cyanea (p. 2) from the same collection; Schomburgkia undulata, a beautiful species sent from La Guayra by Linden, which flowered with Mr. Rucker; Miltonia cuneata (p. 26), which flowered with Messrs. Rollisson, at Tooting; Lycaste crinita (p. 39), a yellow-flowered species from Messrs. Loddiges; Pilumna laxa (p. 73), which flowered with Messrs. Loddiges; Oncidium spilopterum (p. 75) a handsome species also from Messrs. Loddiges. Four of these novelties were figured in the succeeding volume.

How extensive was Messrs. Loddiges' collection at this period may be inferred from a Review of a new edition of their Catalogue which appeared in the *Gardeners' Chronicle* for 1844, in which it was stated that it contained 1916 different kinds, a great increase over the previous edition.

The beautiful Lycaste Skinneri was now coming prominently to the front, and *Paxton's Magazine of Botany* for 1844 commenced with a plate, from a plant which flowered in the "excellent collection of Mrs. Wray, of Oakfield, Cheltenham." It is remarked:—"The species has been brought to this country in great numbers by G. Ure Skinner, Esq., after whom Mr. Bateman has named it. Its native place is Guatemala, and Mr. Brewster, the gardener to Mrs. Wray, informs us that Mr. Skinner found it growing on rocky and mossy banks, in very moist places. Mr. Brewster, who has been particularly successful in cultivating it, grows it in an open basket, filled with moss and leaf-mould, in a temperature ranging from 50° to 70°. No doubt much of its luxuriance is due to the use of leaf-mould; which, as we have before suggested in this Magazine, is likely to prove a valuable medium for many Orchidaceous plants." And here, in the twentieth century, we are discussing the value of leaf-mould as a compost for Orchids. Truly there is nothing new under the sun.

The beautiful Dendrobium Dalhousieanum was also described and figured in this volume (p. 145). It had been sent to the Calcutta Botanic Garden, by the Countess of Dalhousie, after whom it was named, and from Calcutta it was sent by Gibson to Chatsworth, where it flowered. It is now known to be the plant previously described by Roxburgh as D. pulchellum.

In 1845 the beautiful Odontoglossum Cervantesii first appeared in cultivation, and was figured in the *Botanical Register* (t. 36). Lindley remarked:—"Of the beautiful things belonging to the white-lipped section of this genus not one is more perfectly lovely than that which is now figured from a specimen communicated last February from Messrs. Loddiges, who imported it from Oaxaca." And this is how he recommended that it should be cultivated:—"It should be potted in turfy heath-mould in the same way that Orchidaceous plants generally are. In summer an ample supply of water should be given, and the temperature kept up to about 80° by day and about 70° at night. In autumn, as the pseudobulbs become matured, water should gradually be withheld, and for a few weeks in winter little or none will be required, providing the house can be filled with steam for about half an hour every fine day. Although many plants in this Order succeed well on blocks of wood, without any soil whatever, those under pot culture are much benefited by having it renewed every season; this should be done early in spring when the plants begin to grow." No wonder that the plant quickly disappeared.

Chloræa virescens (t. 49) was another interesting introduction, and Lindley remarked:—"At length we have the satisfaction of producing a figure of one of those beautiful terrestrial Orchids which, under the names of Pichiguen, Gavilu, Azuzena, Pica de Loro, &c., are most charming ornaments of the subalpine pastures of the Cordillera of Chili. The present, which is one of the finest, has been reared by Mr. Cameron, the intelligent and skilful Curator of the Botanic Garden, Birmingham, by whom it was exhibited at the last May exhibition, in the garden of the Horticultural Society." Beautiful as it is, it has rarely if ever been seen in cultivation since.

Other interesting plants were: Spathoglottis Fortunei (t. 19), sent from Hongkong by Fortune, and flowered at the Horticultural Society's garden; Stanhopea bucephalus (t. 24), sent from Loxa, by Hartweg, and flowered in the same collection; Schomburgkia tibicinis var. grandiflora (t. 30) from the collection of Robert Hanbury, Esq., Lycaste gigantea (t. 34), another introduction of Hartweg's; Cymbidium Mastersii (t. 50), from Messrs. Loddiges; Aërides maculosum (t. 58), which flowered with Messrs. Rollisson, at Tooting; and Stanhopea inodora (t. 65) from Messrs. Loddiges.

In the *Gardeners' Chronicle* for 1845 we find a series of five articles on the Culture of Orchidaceous plants by Mr. T. Appleby, late gardener to T. Brocklehurst, Esq., of The Fence, Macclesfield, which shows that the writer was thoroughly conversant with every detail of their treatment, as then understood. There is also a rather amusing note by Mr. George Wood, of Rochford, Essex, who remarks (p. 401):—"I have no doubt

many persons, like myself, are anxious to cultivate a few of these beautiful exotics, among a general collection of plants, but the great difficulty appears to be in getting an atmosphere sufficiently moist, without making it too much so for other plants." He then describes how he had long tried the plan of suspending a bottle against the plant which requires to be kept moist, and inserting a piece of common woollen list, one end being in the bottle and the other hanging over the plant, thus acting as a syphon, and discharging water over the plant drop by drop. It was also added that the supply could be increased or diminished by adding to or reducing the pieces of list.

The most remarkable addition of the year 1846 was Brassavola Digbyana, described and figured in the *Botanical Register* (t. 53). Lindley remarked:—"This very singular plant was introduced from Honduras by Mrs. McDonald, and by that lady given to Edward St. Vincent Digby, Esq., with whom it flowered last July, at Minterne, in Dorsetshire. Its huge yellowish white flowers are as sweet as those of Aërides odoratum, and the largest measure nearly three inches in diameter. The neck of the ovary, which is cuniculate in a remarkable degree, is full four inches long."

The Mexican Cypripedium Irapeanum (t. 58) was another remarkable introduction. The plant belonged to Mr. Hugo Finck, but was in the "temporary possession of the Horticultural Society," when it flowered.

The genus Ansellia also appeared in cultivation, in the collections of the Rev. John Clowes and of Messrs. Loddiges. The latter exhibited a plant at a meeting of the Horticultural Society in February, which was afterwards figured as A. africana (t. 30), but this plant is now distinguished from the original A. africana (then only known from dried specimens) as A. confusa.

Other interesting plants were—Vanda lissochiloides (t. 59) from the fine collection of James Bateman, Esq., at Biddulph Grange; Cycnoches Egertonianum var. viride (t. 46) from Messrs. Loddiges (now referred to C. Warscewiczii); Cœlogyne ochracea (t. 69), a charming species from T. Brocklehurst, Esq., The Fence, Macclesfield; Pilumna laxa (t. 57) from the Horticultural Society's collection, and Sarcochilus Calceolus (t. 19), a Philippine plant sent by Cuming to Messrs. Loddiges, with whom it flowered.

One other striking addition of 1846 must be mentioned, namely Odontoglossum hastilabium (*Bot. Mag.*, t. 4272), which first flowered in the Duke of Northumberland's collection at Syon House in August of that year.

The *Gardeners' Chronicle* for 1846 contains several interesting items, and among them we find it reported (p. 359) that the fine collection of the late Mr. Barker, of Birmingham, had passed into the possession of

Mr. Blandy, of Reading, at a price of about £900. Also (p. 676) that the Rev. J. Clowes had willed his collection to the Royal Gardens, Kew, where they were then being taken. Mr. Lyon's slate baskets for Orchids were also figured and described (p. 31) as the "best in the world."

Perhaps the most remarkable addition of 1847 was the beautiful Cymbidium eburneum, which flowered with Messrs. Loddiges, and was figured in the *Botanical Register* for that year (t. 67). Lindley remarked:—"The flowers of this charming plant are not only among the largest of the genus, but among the sweetest. Not a spot interferes with the pure ivory white petals, except one long yellow stripe along the middle of the lip."

Eriopsis biloba (t. 18) also appeared in a rather mysterious way. Lindley remarked:—"The history of its introduction is unknown. It has been flowered by J. T. Blandy, Esq., of Reading, who, in September last, favoured us with a specimen; it had been acquired by him among many rare species forming the late Mr. Barker's collection, which Mr. Blandy purchased, and is possibly some western plant. We do not, however, find any trace of it in books, or among our own unarranged collections."

Other interesting things were:—Brassia brachiata (t. 29), which had flowered with Messrs. Rollisson and Mr. Bateman; Calanthe curculigoides (t. 8), from Messrs. Loddiges; Cœlogyne speciosa (t. 23) from Messrs. Veitch, of Exeter; Saccolabium miniatum (t. 58) from Mr. Rucker, and Mr. C. B. Warner; Dendrobium chrysotoxum (t. 36) from Messrs. Henderson; Cattleya bulbosa (t. 42) from Mr. Rucker—which afterwards proved identical with C. Walkeriana, then only known from dried specimens; Epidendrum plicatum (t. 35) from Messrs. Loddiges; Dendrobium cretaceum (t. 62), and Oncidium curtum (t. 68), from Messrs. Veitch, of Exeter; O. amictum (t. 66) and O. pelicanum (t. 70), from Messrs. Loddiges. We also find notices of Dendrobium Veitchianum (sub. t. 25), Bulbophyllum Lobbii (sub. t. 29), both from Messrs. Veitch, and Odontoglossum maxillare (sub. t. 62), from Mr. C. B. Warner and others. Thus the volume had been specially interesting, and we find no explanation as to why the work should have suddenly ceased, as it did at the end of the year. It concluded with Oncidium pelicanum.

The *Gardeners' Chronicle* for 1847 contains (p. 100) a description of a remarkable plant of Lælia superbiens in the Horticultural Society's garden, about four feet across and bearing nine handsome spikes of ten to thirteen flowers each—certainly a noble specimen. Dendrobium speciosum was also bearing sixteen spikes. We also find an account of a sale of M. J. Linden's Orchids from Cuba and New Granada, at which good prices were obtained.

CATTLEYA GROSSII AND C. BICOLOR.

A VERY interesting Cattleya has again flowered in the establishment of Messrs. Hugh Low & Co., Bush Hill Park, Enfield, whose systematic position is somewhat uncertain. It was exhibited at a meeting of the R. H. S. on November 26th, 1901, under the name of Cattleya Grossii, and was recorded in these pages as "a supposed natural hybrid from Brazil, much resembling C. bicolor, but with a trace of spotting on the petals" (*Orch. Rev.*, ix., p. 367). The plant was originally described and figured by

FIG. 31. CATTLEYA BICOLOR.
FIGS. 32, 33. CATTLEYA GROSSII.

Kränzlin, in 1897, as a supposed natural hybrid between C. bicolor and C. guttata (*Gartenflora*, xlvi., p. 113, t. 1436), and is said to have flowered in the Royal Botanic Garden, St. Petersburg. It was dedicated to Herr C. J. Gross. It had been sent by A. Lietze, of Rio de Janeiro, who in a subsequent note (*l.c.*, p. 359) explains that he collected it during a journey made from that place, and sent it to Dr. Regel, at St. Petersburg; the plants not being in flower when collected. The same thing was described

and figured by Dr. Klinge in the following year, under the name of C. bicolor var. olocheilos (*Act. Hort. Petrop.*, xvii., p. 135, t. 1, fig. 6). It is described as differing from typical C. bicolor in having the perianth segments "olivaceo-flavo-brunneis," more or less spotted with purple, the petals spathulate, obtuse, and undulate, and the lip nearly pandurate, somewhat convex, with the front lobe dilated, roundish, and retuse or emarginate. Messrs. Low state that their plants came in a separate importation, and from the neighbourhood of Rio de Janeiro, but the exact locality they do not know. About fifty or sixty plants are in flower, differing somewhat among themselves, but all showing the remarkable dilated front lobe of the lip, a character also seen in plants flowering at Kew and Glasnevin, and quite different from anything seen in the old C. bicolor. It is thus clear that we have a distinct local type to deal with, and not a mere individual variation. As to the idea of the plant being a natural hybrid between C. bicolor and C. guttata (it is even suggested that the latter was the seed parent), there are two facts which tell strongly against it. First, the total absence of side lobes from the lip, and second, the fact that the plants came home separately as an entire importation. The forms at present seen by me vary from $1\frac{1}{4}$ to $1\frac{3}{4}$ inches in the breadth of the lip, and from coppery brown to dusky olive brown in the colour of the sepals and petals, and both with and without spots. The colour of the lip is almost uniformly deep rose-pink, sometimes with a white spot on the centre of the disc. There is a certain resemblance to C. Leopoldi in the shape, colour, and spotting of the petals, but it extends no further, and the habit of the plant, and absence of side lobes from the lip, prove it to be a near ally of C. bicolor, though I do not regard it as a simple variety of this old species, but rather as a distinct local race or subspecies. The ample dilated front lobe of the lip gives it a very distinct appearance, and it is far more showy than the old type. We hope to see its history completely cleared up, and there are several other Brazilian Cattleyas of which further information would be acceptable. Our hybridists might also let us know what a real hybrid between C. bicolor and C. Leopoldi is like.

Since the above was written, Mr. I'Anson has taken the photograph which is here produced, showing two forms of C. Grossii (figs. 32, 33), side by side with one of C. bicolor (fig. 31), which illustrates in a graphic way the differences between them. Besides the broader lip of C. Grossii, it will be seen that the petals are distinctly convex and reflexed at the apex, with stronger undulations than in C. bicolor, and the remarks apply to some extent also to the sepals. The two figures of C. Grossii give some idea of the amount of variation in shape, but not in colour, and the amount of spotting on the petals.

R. A. Rolfe.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the above Society was held at the Drill Hall, Buckingham Gate, Westminster, on September 2nd, when the display of Orchids was rather small, though cf good quality.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Cattleya × Cybele Oakwood var. (Lueddemanniana × Gaskelliana), and Cypripedium × vexill-Io. A First-class Certificate was given to Odontoglossum × Wilckeanum Rothschildianum, one of the finest forms of this beautiful natural hybrid, the flowers being 4½ inches in diameter, and having a light yellow ground, heavily blotched with bright red-brown. Lælio-cattleya × Cooksonæ (L.-c. × Clive × C. labiata) also received a First-class Certificate. This was a very beautiful hybrid, most like C. labiata in shape, the sepals and petals deep rose-lilac, and the lip deep crimson, suffused with yellow in the centre, and lined with rich purple.

W. P. Burkinshaw, Esq., Hessle, near Hull (gr. Mr. Barker), received an Award of Merit for Cattleya Schofieldiana Hessle var., a fine form of C. granulosa with a yellow ground colour and numerous spots.

W. B. Latham, Esq., Botanic Gardens, Birmingham, sent a well-grown plant of Cypripedium × A. de Lairesse (Curtisii × Rothschildianum), raised by the exhibitor, and fairly intermediate in character, the dorsal sepal being cream white, shading to green at the base, and lined with purple, the petals handsomely spotted, and the lip deep chocolate-brown in front.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed Odontoglossum × Crawshayanum (Hallii × Harryanum), bearing a raceme of two fine flowers.

Sir Trevor Lawrence, Bart., Burford. Dorking (gr. Mr. White), sent a three-flowered spike of the fine white Habenaria Susannæ.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), exhibited the fine natural hybrid Cattleya × Hardyana (Warscewiczii × Dowiana aurea), bearing three flowers, a very fine form of C. × Dowiana, and a variety of C. Gaskelliana called Pitt's var., having small and almost pure white flowers.

J. S. Moss, Esq., Wintershill, Bishop's Waltham (gr. Mr. Kench), sent a plant called Lælio-cattleya × Wylamiana (L. crispa × C. granulosa) most like the Cattleya parent in general character, and having the lip deeply marked with rich purple. It must be considered as a form of L.-c. × Mandarin, described at page 270.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), sent some hybrid Cypripediums, together with Lælia × Iona (tenebrosa × Dayana).

Messrs. Stanley, Ashton & Co., Chase Side, Southgate, sent the typical form of Oncidium Forbesii, together with the striking and handsome variety O. F. Bradshawæ, the latter obtaining an Award of Merit. It is an albino form, having the whole of the purple markings of the type changed into bright yellow.

Mr. E. Kromer, Roraima Nursery, Bandon Hill, Croydon, received a Botanical Certificate for Anœctochilus concinnus, a very handsome species, having the leaves bronze coloured, with gold markings.

The advent of autumn invariably brings an increase in the number of exhibits, and the meeting held on September 23rd produced a most interesting and representative display of Orchids.

The Hon. W. Rothschild, M.P., Tring (gr. Mr. Hill), staged a fine group consisting largely of Masdevallias and their allies, and was awarded a Silver Flora Medal. The group included Cryptophoranthus Dayanus, Scaphosepalum ochthodes, Physosiphon Loddigesii, Restrepia antennifera, Pleurothallis macroblepharis, and other interesting species of the genus, Masdevallia macrura, M. maculata superba, M. ignea Stobartiana, M. erythrochæte, M. Carderi, M. ionocharis, M. gemmata, M. Estradæ, M. muscosa, M. triaristella, M. nidifica, M. calura, M. nycterina, M. floribunda, M. × Rushtoni, M. × Measuresiana, M. × Gairiana and other Masdevallias, the pretty Cattleya × fulvescens and two other hybrid Cattleyas, the scarlet Ornithidium coccineum, and other plants.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), was awarded a Silver Banksian Medal for an effective group, including Masdevallia Veitchiana, Lycaste leucantha, Lælio-cattleya × Henry Greenwood, L.-c. × Colmanii (C. Dowiana aurea × L.-c. × Arnoldiana), Cattleya Mendelii superba, a fine example of the richly-coloured variety called C. × Hardyana Mr. Jeremiah Colman, good examples of Miltonia Regnellii and its variety citrina and some good varieties of Lælia pumila.

Col. Brymer, M.P., Dorchester (gr. Mr. Denny), showed a form of Cypripedium × Umlauftianum (Lawrenceanum × insigne montanum).

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert) exhibited Cattleya Dowiana aurea, C. × Hardyana, and a fine form of Lælio-cattleya × Schilleriana called Westfield variety.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. Young) showed the charming little Cypripedium × Muriel Hollington.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed Sophrocattleya × eximia, the fine Oncidium Lanceanum, Odontoglossum Uroskinneri, a prettily blotched form of O. × Adrianæ Cypripedium × Thurgoodi, a pretty cream-white bellatulum hybrid densely spotted with purple, and C. × Felicity, a delicately tinted hybrid of uncertain parentage.

Messrs. Charlesworth and Co., Heaton, Bradford, staged a group of fine hybrids, including Cattleya × Hardyana, C. × Miss Williams, two pretty light forms of Lælio-cattleya × Gottoiana, Lælia × Iona, a very fine example of Angræcum Ellisii, Catasetum Bungerothii, and many others. A First-class Certificate was given to Cattleya × Iris Charlesworth's var. (bicolor × Dowiana aurea), a particularly fine form, having bronze-yellow sepals and petals, and the broad front lobe of the lip dark rose-crimson. An Award of Merit was given to Lycaste × hybrida, a pretty, natural hybrid from L. Skinneri and L. Deppei, having cream-white, densely spotted flowers.

Messrs. H. Low and Co., Bush Hill Park, staged a fine group, and were deservedly awarded a Silver Flora Medal. The group included some fine specimens of Dendrobium formosum giganteum, one of them bearing over thirty flowers; Cattleya Eldorado Wallisii, C. bicolor, C. Gaskelliana alba, C. × Minucia, C. × Mantini, C. × mollis (Gaskelliana × superba), C. × Mrs. J. W. Whiteley, C. × Maroni, and two splendid examples of C. × Hardyana and C. × H. enfieldensis, the latter having light sepals and petals and a ruby purple lip. An Award of Merit was given to Cattleya Grossii, an interesting species which is figured on page 305 of the present issue.

Messrs. J. Veitch and Sons, Chelsea, staged an excellent group, and received a Silver Flora Medal. The group included Lælio-cattleya × Bryan, L.-c. × callistoglossa, L.-c. × bletchleyensis, L.-c. × Remula superba (L. tenebrosa × C. Aclandiæ), having Indian yellow sepals and petals, and a rich violet-purple lip, the fine L.-c. bella var. langleyensis (L. purpurata × C. labiata), Cattleya × Chloris, C. × Ophir, C. × Clytie, Lælia × splendens, L. × Pacavia (tenebrosa × purpurata), Cypripedium × Madame Truffaut, and many others.

M. Ch. Beranek, Rue de Babylone, Paris, showed the curious Lælio-cattleya × Lutetia (C. velutina × L.-c. × elegans Turneri), having rather narrow buff-coloured sepals and petals veined with purple, and the front lobe of the lip darker purple.

Mr. J. Cypher, Queen's Road, Cheltenham, exhibited some good forms of Odontoglossum crispum, Cypripedium niveum, C × Vipani, the striking C. Charlesworthii marginatum, in which the base and margin of the dorsal sepal are tinged with rose, and the centre much paler, Cattleya × Mantinii inversa, and Lælia pumila Cypher's variety, a beautiful white flower with some crimson markings on the lip.

Mr. E. Kromer, Bandon Hill, Croydon, showed Epidendrum floribundum, bearing a panicle of green and white flowers.

M. A. A. Peeters, St. Gilles, Brussels, showed Miltonia × Peetersiana, Lælio-cattleya × Andreana Peeters' variety, and "Cattleya aurea Memoria

Queen Marie Henriette," having cream white sepals and petals, and a purple lip with some yellow veining at the base.

Messrs. Sander and Sons, St. Albans, staged a group of Orchids containing Cattleya × Lord Rothschild, Lælio-cattleya × bletchleyensis, a very fine example of L.-c. × Henry Greenwood, and a curious sparsely spotted form of Cypripedium × Leeanum.

Messrs. Stanley, Ashton, and Co., Southgate, staged a well-arranged group of fine forms of Cattleya Dowiana aurea and C. Loddigesii, including the blush-white C. L. delicata, together with the handsome Cypripedium × Neptune (Io grande × Rothschildianum).

Manchester and North of England Orchid.

A MEETING of this Society was held at the Coal Exchange, Manchester, on September 11th, when a good display of Orchids was seen.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), received a Bronze Medal for a fine group, containing Cypripedium × Fowlerianum, a good plant of the striking C. × Mabeliæ var. Corona (First-class Certificate), the reverse cross of the one called Lord Derby, and having broad, handsomely spotted petals, a very fine plant of Cœlogyne pandurata (Cultural Certificate), and the handsome Brassia Lawrenceana longissima (Award of Merit).

E. Rogerson, Esq., West Didsbury (gr. Mr. Lowe), received a First-class Certificate for the handsome Cattleya × Hardyana Oakdene var., having a very richly coloured lip, and an Award of Merit for Cypripedium × E. Rogerson, apparently a cross between C. × orphanum × C. Charlesworthii.

M. Jules Hye, Ghent, was awarded a First-class Certificate for Brassocattleya × heatonensis (B. Digbyana × C. × Hardyana, a very handsome, delicately tinted flower with a fringed lip.

Captain C. C. Hurst, Burbage Lodge, Hinckley (gr. Mr. Dakin), received an Award of Merit for Cattleya × Germania burbagensis (C. granulosa × C. × Hardyana), a handsome plant, figured on page 297 of the present issue.

H. Thorpe, Esq., Boothroyden, showed a very curious form of Cattleya Forbesii, having the flower greenish throughout in colour.

R. Tunstill, Esq., Brierfield, Burnley (gr. Mr. Balmforth), exhibited the handsome yellow Odontoglossum grande aureum.

T. Statter, Esq., Whitefield (gr. Mr. Johnson), showed Lælio-cattleya × Ingrami, a hybrid Cypripedium (Stonei × Rothschildianum), and a fine plant of C. × triumphans.

Messrs. Charlesworth and Co., Bradford, staged a fine group, for which a Bronze Medal was awarded. Awards of Merit were given to the follow-

ing three plants :—Lœlio-cattleya × albanensis inversa (C. Warneri × L. tenebrosa), L.-c. × Adolphus (L. cinnabarina × C. Aclandiæ), and the handsome Sophrolælia × heatonensis (S. grandiflora × L. purpurata), the latter a handsome flower, bright cerise in colour.

Mr. John Robson, Altrincham, received an Award of Merit for Cypripedium × Lawrebel.

Messrs. Cowan and Co., Gateacre, showed Oncidium × punctatum, a supposed natural hybrid between O. Forbesii and O. Gardneri.

Mr. A. J. Keeling, Cottingley, Bingley, exhibited Lælia × Diana (L. purpurata × L. Dayana).

TWO NEW NATURAL HYBRIDS.

In *The Garden* for September 13th (p. 182) we observe an account of two new natural hybrids, from the collection of R. H. Measures, Esq., The Woodlands, Streatham, by "Argutus." The first is called Lælio-cattleya × Philip Stokes, and its parents are given as Lælio-cattleya × elegans and Cattleya Leopoldi; the second is called L.-c. × Queen Alexandra, from L.-c. × Schilleriana and Lælia purpurata. "The wonder is," remarks the writer, "considering the length of time that Lælio-cattleya × elegans, Schilleriana, and Lælia purpurata have been imported and cultivated, that the presence of this and the preceding hybrid has not previously been known or suspected, as it is quite reasonable to suppose that as we have natural hybrids between Cattleya Leopoldi, Lælia purpurata and Cattleya intermedia, these hybrids must in some cases, and as the two above-mentioned now prove, have crossed between themselves and with the parent species. There can be no doubt as to the correctness of the parents ascribed, as, fortunately, flowers of the true L.-c. × Schilleriana were at hand for comparison."

We should like to be able to compare these two plants with some of the numerous and varied forms of Lælio-cattleya × elegans and Schilleriana that are already known, for it is by no means clear that similar forms have not already appeared, nor yet that the writer is correct in his interpretation of their descent. Of course it is quite possible that there may be secondary hybrids in the group named, but when only two species are concerned in the parentage, how are they to be recognised? According to the above argument, "L.-c. × Philip Stokes" is made up of Cattleya Leopoldi three-fourths, and Lælia purpurata one-fourth; and "L.-c. × Queen Alexandra" of L. purpurata three-fourths and C. intermedia one-fourth, but there are many primary hybrids in which the dominance of the one parent is so pronounced that were their origin unknown one might assume that the parentage was in something like the above-named proportions. It may be

argued that L.-c. × elegans and Schilleriana do not answer to this description, or if a few extreme forms do so they must be secondary hybrids. In any case flowers of these two plants should be preserved for future reference and comparison.

If the contention of "Argutus" is valid, there are several more possible secondary hybrids to be looked for. We have three species growing together, and three known primary hybrids between them; and now two of the latter are each said to have recrossed with one of its original parents. But clearly they may also recross with the other original parent, and the third hybrid with each of its parents. And each primary hybrid might also intercross with the third species growing there, which is not one of its own parents; and, again, they might also intercross among themselves; making a total of ten more possible secondary hybrids. And six of these should have all three species in their ancestry, so that these might be looked for with better hopes of success—if they really exist—that is so far as marks of recognition are concerned. Fortunately our hybridists, have provided us with a few standards for comparison, for already we have L. purpurata × L.-c. × Schilleriana (= L.-c. × Horniana), L. purpurata × L.-c. × elegans (= L.-c. × Pringiersi), C. intermedia × L.-c. × elegans (= L.-c. × Cicero), and L.-c. × Schilleriana × C. Leopoldi (= L.-c. × aurelian-ensis), which should be useful in view of the extension of this difficult question. It should be added that two or three amendments have been introduced since the original records.

By the way, our astute friend seems to have overlooked the fact that we have already a Lælio-cattleya × Queen Alexandra (L.-c. × bella × C. Trianæ), a First-Class Certificated plant too. But there is no need to re-christen his later plant, for if he is correct as to its parentage it should rank as a form of L.-c. × Horniana. But this point is quite open to question, for there is the well-known variation of seedlings from the same capsule to allow for. At all events the plant should be further compared with L.-c. × Schilleriana, which is polymorphic enough.

MENDEL'S LAW OF INHERITANCE.

In an article entitled "Some Recent Work on Hybrids in Plants" by V. H. Blackman (*New Phytologist*, 1902, pp. 73-80, 97-106), summarised in the *Botanisches Centralblatt*, it is remarked that while the work of recent investigators extends and confirms the laws enunciated by Mendel, it also tends to show that these laws are only special cases of more general ones yet to be discovered. The evidence furnished by Mendel, and by more recent investigators, seems to point to a theory of heredity of the type of Darwin's Pangenesis, in the form lately put forward by De Vries.

PAPHIOPEDILUM × PARIS.

THIS is a very charming little hybrid, which flowered in the collection of R. H. Measures, Esq., The Woodlands, Streatham, in 1893. Its origin is a little doubtful, but it is thought to have been one of the late Mr. Hall's seedlings, and its recorded parentage is P. bellatum crossed with the pollen of P. Stonei. Its affinity with the former is obvious enough, but we have always felt some doubt about the latter, whose influence ought to have stamped itself much more strongly upon the shape of the flower. It is said

FIG. 34. PAPHIOPEDILUM × PARIS.

to have been an only plant, and it is curious that nothing which has been recognised as identical has since appeared. It would be interesting to repeat the cross, and let us know the result. There has been a suggestion that P. callosum was the second parent, in which case P. × Wottoni would be synonymous, but a comparison with the only figure available hardly bears out the idea. In any case it is a charming little plant, but its parentage can hardly be considered settled at present.

CALENDAR OF OPERATIONS FOR OCTOBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

WE have approached the time of year when the Orchidist can look forward to seeing the results of his labours during the past months. His plants should by this time have completely recovered from the effects of repotting, &c., and be well provided with healthy vigorous roots. In this case the pseudobulbs now forming, as well as those that have done so, will begin to fill up rapidly, and will be able to go through the long dreary winter months with better results.

The following table of temperatures may be useful during the next few weeks, but should not be too strictly adhered to, as one must be guided by the prevailing conditions of the weather, and allow a rise or fall of 5° to 10° accordingly.

COOL HOUSE:—Day 60°, night 55°, morning 50°.

INTERMEDIATE, MEXICAN, OR CATTLEYA HOUSES:—Day 65° to 70°, night 65°, morning 60°.

EAST INDIAN HOUSE:—Day 75°, night 70°, morning 65°.

Probably there is no other month throughout the year, when less water is required for damping-down purposes, as the great majority of plants in the various departments have now completed growth; others are approaching that stage, so that they not only require less water direct, but a much less humid atmosphere; whilst those having no apparent season of rest require also less moisture, so that new growth may become somewhat hardened ere the rigours of winter set in. The desirable conditions of hardening are only secured by admitting a good deal of fresh air, which is at this season heavily charged with moisture, and therefore cannot absorb the same so quickly from the interior of the house, as is the case during the summer months. It will therefore be seen that not nearly so much damping is necessary, and in no case should this be proceeded with until the normal degree of warmth in a house is reached.

COOL HOUSE.—Fire heat will now be required during the night, and also during the day should the weather be cold and dull. It is best to have a gentle warmth in the pipes, to allow a sufficient amount of ventilation, and to maintain a steady and regular temperature of from 50° to 60°; which will be found a suitable one throughout the winter months. The tender subjects which were placed in this house for the summer months, may now be removed to warmer quarters.

CATTLEYA HOUSE.—The species in this house, such as Cattleya Schrœderæ, C. Mendelii, C. Trianæ, and Lælia purpurata, which are about to finish up growth, as well as the various hybrids, need careful attention at this season; sometimes moisture will collect about the base of the new

pseudobulbs inside the outer covering, which becomes blackened, and often decay sets in. When this is observed, the skin should be slit from top to bottom, to enable the enclosed moisture to dry up, at the same time withholding water for a few days. The cause of this trouble is usually drip from the roof, or excess of moisture in the atmosphere. This should be reduced at the present season; also avoid as much as possible direct draught on the plants, which is often the cause of trouble.

The old Cattleya labiata will give a grand display during the next few weeks, when its flowers will be greatly welcomed for their usual brilliant colours. When first imported it is one of the easiest plants to grow, for as a rule it is of vigorous constitution, and while this lasts there is not much fear of mishap. This vigour, however, as in the case of a great many others of the Cattleya group—cannot always be retained, and after a time decline sets in, which makes its cultivation much more difficult. This is doubtless due to the freedom with which it produces bloom, and the time of year helps it to retain the flowers in good condition for a longer period than is the case with summer flowering species. This danger can be some what minimised by removing the flower spikes within a reasonable time after the flowers are expanded, and placing the same in flower holders, which can easily be got for this purpose.

Lælia anceps varieties, together with L. albida, L. Gouldiana, and L. autumnalis, are throwing up flower spikes, which indicates that their blooming season is near at hand. Syringing overhead will not be required as often as previously advised and only when the days are warm and sunny should this be done. Owing no doubt to the wretched weather we have experienced this year, a great many plants will require a little extra attention at the present time, by giving them slightly warmer conditions, &c., in order to get growth well forward. Such plants as Cattleya Mossiæ and Odontoglossum citrosmum, which are somewhat late in making up growth, as well as those that naturally grow during the winter, such as Lælia purpurata, L. tenebrosa, L. crispa, L. xanthina, Miltonias, &c., should occupy the warmest position available in the Cattleya house.

Calanthes.—The deciduous Calanthes will be fast pushing up their flower spikes to bloom during the mid-winter months. In urban districts these are usually unsatisfactory plants to deal with, for in no case do we get the same brilliancy in colour, as in localities where plenty of light is obtainable, and there are no sulphurous fogs to contend with. When these conditions are available, there is probably no Orchid more useful for decorative purposes. This section will now gradually cast their foliage, and must be watered with great moderation until the blooming period, and still occupy a warm house. The other section which follow on and bloom in the spring, such as C. Regnieri, C. Turneri, and its variety nivalis,

and the hybrids originating from them, are much later in loosing their foliage, so that their treatment should be varied accordingly. The evergreen section of Calanthe is not in such great demand as formerly, and this is doubtless due to the fact that the species are much less showy than the deciduous kinds, yet there are many that are well worth a place in any collection, as for instance C. veratrifolia, C. Masuca, C. × Dominii, and C. × Rollissoni. Leaf soil forms a splendid rooting medium, and they can be well grown in this material if given a position in the Intermediate house.

PHALÆNOPSIS.—These beautiful plants have made great headway of late; the winter flowering species are now throwing up their spikes. Plants so doing should not suffer from lack of moisture at the roots, avoiding however any excess. No Phalænopsis should be afforded water before it is seen that the moss is really dry and then they should be immersed in a vessel of water, which should be tepid, so that the plant may not suffer a check in any way. The variability of our winter climate renders it necessary to avert any check to growth during the next few months.

SOPHRONITIS:—The plants of this pretty little Orchid are now in a forward state, and will need every assistance in order to develop their leaves and flowers. If required earlier, a batch may be removed from the Cool house, to a position in the Intermediate house; they will then expand their flowers much earlier. Do not allow the plants to suffer in any way from want of moisture at the roots, as more will be necessary if they are moved into extra heat.

THE HYBRIDIST.

LÆLIO-CATTLEYA × GROGANIÆ.—A flower of this charming little hybrid has been sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow. It has improved considerably since it was described at page 30 of the present volume, though the bulbs are said to be still no larger than Lælia Dayana, possibly because the plant has increased from two leads last year to eight at the present time. The petals are now 2¼ inches long, and the flower is most like L. Dayana in shape, but the colour a beautiful rose-purple, almost as in Cattleya Harrisoniana, with the throat of the lip deep yellow, and strongly corrugated, as in the species just named.

PAPHIOPEDILUM × VANNERÆ.—A fine hybrid is sent from the collection of Mrs. Ross, of Florence, which is believed to have been a seedling from P. × selligerum. There is some uncertainty about the pollen parent, which it is suggested may have been P. superbiens, in which case it would be a form of P. × Elinor, a hybrid which flowered in the collection of

D. O. Drewett, Esq., in 1890. We, however, think that the second parent must have been P. Curtisii, for the petals are very neatly crenulate, closely and minutely spotted almost throughout; the dorsal sepal very acute, and the lip and staminode large. In fact the resemblance to P. Curtisii is so marked that we think it cannot be accidental, and we regard it as a form of P. × Vanneræ, which flowered in the collection of the late W. Vanner, Esq., in 1895. The leaves are very prettily and distinctly marbled, and the inflorescence 1½ feet long, and at present two-flowered.

LÆLIO-CATTLEYA × HORNIANA.—This fine hybrid was originally recorded as a hybrid between Lælia purpurata and Lælio-cattleya × elegans, but owing to its colour it is believed that the second parent was L.-c. × Schilleriana. A flower from the same two parents is sent from the collection of the Right Hon. J. Chamberlain, M.P., and has just the characters that would be expected. The general colour is white, with the front lobe of the lip rich purple, and a little of the same colour at the apex of the side lobes. It is likely to develop into a fine thing.

LÆLIO-CATTLEYA × ASCANIA.—A very pretty form of this beautiful hybrid is sent from the collection of the Right Hon. Joseph Chamberlain, M.P., by Mr. Mackay. Its parentage is Cattleya Gaskelliana × Lælia xanthina, and the plant is now flowering for the second time, bearing a four-flowered inflorescence. In shape and size it most resembles L. xanthina, and the sepals and petals are primrose yellow, while the front lobe of the lip is suffused with lilac-rose, and veined with purple, the disc light reddish-maroon, and the side lobes yellow, with a purple margin in front. It is a distinct and very pretty hybrid, in which the influence of the Cattleya parent is chiefly seen in the enlarged size of the flower, and the richly coloured front lobe of the lip.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during October, on the 7th and 21st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings on Thursday, October 2nd, and Friday, October 17th. The Committee meets at 11-30 a.m., and the exhibits are open to inspection from 12-30 to 3 p.m.

A flower of the beautiful Odontoglossum grande aureum is sent from the collection of R. Tunstill, Esq., Monkholme, Brierfield, Burnley, by

Mr. Balmforth. There is not a trace of brown anywhere about the flower, all the markings which are brown in the type being here of a deep yellow, about twice as dark as the ground colour, so that the markings are well defined. It contrasts very effectively with the typical form.

A good form of Cattleya × Hardyana is also sent. Itis from one of eight plants purchased at the Sale Rooms last year as C. Dowiana aurea, and illustrates once more the unexpected way in which this beautiful natural hybrid appears. The flower is rather small at present, because not yet fully established.

A beautiful hybrid from Lælia purpurata ♀ and Cattleya Aclandiæ ♂ is sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens. It has the expanded shape of the latter parent, and measures $6\frac{1}{4}$ inches across the flower. The sepals and petals are rosy lilac in colour, the front lobe of the lip crimson-purple, and the side lobes lilac, lined with purple, while on the centre of the disc occurs a light yellow elongated blotch. The front lobe of the lip is $1\frac{3}{4}$ inches broad, and the rounded side lobes are rather longer than the column. A similiar hybrid flowered with Messrs. Duval last year, and was exhibited under the name of Lælio-cattleya × purpurato-Aclandiæ (*O.R.* ix, p. 338).

In the *Journal of the New York Botanical Garden* for August, 1902 (iii, pp, 145-147) is given a note and figure of a fine specimen of Oncidium Baueri, which has flowered in the New York Botanical Garden. The species is a native of the West Indies, and was obtained by a collector of the Garden in Porto Rico, its present condition being due, Mr. Nash, the head gardener, remarks, to "two or three years of greenhouse culture. It is suspended from the roof at the west end of the house, its numerous flowers, yellow barred with brown, hanging in graceful panicles. There are five of these clusters, the shortest with a length of 4 feet 3 inches, while the longest measures 12 feet 6 inches; the total length of the five panicles is 35 feet 8 inches. This same plant bore but a single cluster last year, which was between four and five feet long."

A list of the species and hybrids which flowered in the collection of the late H. J. Ross, Esq., of Florence, during last July, appears in the *Bulletino della R. Societa Toscana di Orticulture* for August (p. 255), the total number being seventy-nine.

An illustration of the fine group of Orchids exhibited by Messrs. Sander & Sons at the R.H.S. meeting at Holland House, Kensington, on June 24th last, has just appeared in *American Gardening* (xxiii, p. 593, fig. 125). It is reproduced from a photograph.

A flower of Paphiopedilum Charlesworthii in which the two lateral sepals are free, instead of united, is sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass (gr. Mr. W. F. Oliver). In other respects it is normal, and a good example of this elegant little species.

A charming form of Odontoglossum crispum is also sent from the same collection, having the sepals and petals prettily tinged with blush pink, and bearing numerous small red-brown spots, which are equally distinct on the back of the segments. It is of good shape, prettily crisped, and should be taken care of, for at present it is a very small plant bearing a single flower.

A flower of the pretty little Miltonia × Binoti Crawshayana is sent from the collection of De Barri Crawshay, Esq., Rosefield, Sevenoaks. It appeared in a mass of M. Regnellii citrina, and is intermediate between that and M. candida, having the lip entire, with distinct traces of brown blotches in the sepals and petals.

A flower of the pretty Lælio-cattleya × Adolphus (L. cinnabarina × C. Aclandiæ) is sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay. Also the fine L.-c. × Magnei (C. granulosa Schofieldiana × L. tenebrosa), and a curious form of Odontoglossum crispum, in which one flower has a large dark blotch on each of the sepals, while in the other flower they are clear white. It would be interesting to see what the latter is like next year.

A pretty form of Paphiopedilum insigne is sent from the collection of Lord Pirbright, Henley Park, Guildford, by Mr. Repton. The green area of the dorsal sepal, instead of being spotted, is mottled and obscurely lined with light brown, forming a striking contrast with the typical form, of which a good flower is also sent. The former bears the varietal name, Lady Pirbright.

A flower of an extremely fine hybrid Paphiopedilum is sent from the collection of T. Statter, Esq., Stand Hall, Whitefield, Manchester (gr. Mr. Johnson). It is thought to have been derived from P. Rothschildianum and P. Stonei, but the petals are broader than in either of these species, and on careful comparison it seems to be so precisely intermediate between P. Rothschildianum and P. Morganiæ that we think this represents its actual parentage. We have not seen the foliage, but there is a distinct trace of the horse-shoe shaped staminode of the P. superbiens section of the genus, which is seen in the presence of a pair of acute curved apical teeth. In view of this uncertainty, the question of name stands over for the present.

ORCHID PORTRAITS.

CATTLEYA LUEDDEMANNIANA ALBA.—*Journ. Hort.*, 1902, xlv, p. 283, with fig.

CATTLEYA × NIOBE.—*Gard. Mag.*, 1902, 274, with fig.

CŒLOGYNE CRISTATA (specimen plant).—*Amer. Gard.*, xxiii., pp. 558, 559, fig. 117.

CYNORCHIS PURPURASCENS, Thouars.—*Bot. Mag.*, t. 7852.

CYPRIPEDIUM × EMPEROR OF INDIA.—*Gard. Mag.*, 1902, 274, 275, with fig.

CYPRIPEDIUM ROTHSCHILDIANUM.—*Gartenflora*, 1902, pp. 485-487, fig. 105, 106.

DENDROBIUM × LEECHIANUM.—*Journ. Hort.*, 1902, xlv, p. 215, with fig.

DENDROBIUM NOBILE ALBUM.—*Journ. Hort.*, 1902, xlv, 237, with fig. VAR. JASPIDEUM.—*Lindenia*, t. 781.

EPIDENDRUM ENDRESII, Rchb. f.—*Bot. Mag.*, t. 7855.

HABENARIA MEDUSA, Kränzl.—*Lindenia*, t. 783.

LÆLIA × NIGRESCENS.—*Amer. Gard.* xxiii, p. 578, fig. 122.

LÆLIO-CATTLEYA × BLETCHLEYENSIS.—*Amer. Gard.*, xxiii, pp. 578, 579, fig. 123.

LÆLIO-CATTLEYA × EDGAR WIGAN.—*Garden*, 1902, lxii, p. 219, with fig.

LÆLIO-CATTLEYA × PAULI.—*Lindenia*, t. 784. A form of Lælio-cattleya × Duchesnei.

LIPARIS TRICALLOSA, Rchb. (as "Metroschillus sp.").—*Amer. Gard.*, xxiii, p. 595, fig. 126.

ODONTOGLOSSUM × ADRIANÆ VAR. LEOPARDINUM.—*Lindenia*, t. 782.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

A.C.A. The seedling Cattleya is C. × Clytie, a hybrid from C. Bowringiana and C. velutina, and the plant is evidently not yet fully developed.

J.C. 1, Odontoglossum × Coradinei, a natural hybrid between O. crispum and O. Lindleyanum. 2, a form of O. crispum, having the sepals and petals white, and some cinnamon-coloured markings on the lip. Both are fairly average forms.

F.L. The Mormodes is identical with an imperfectly known species from Mexico, but the correct specific name remains doubtful at present.

F.K. Catasetum trifidum.

Photographs received, with thanks.—B.G., G.I'A.

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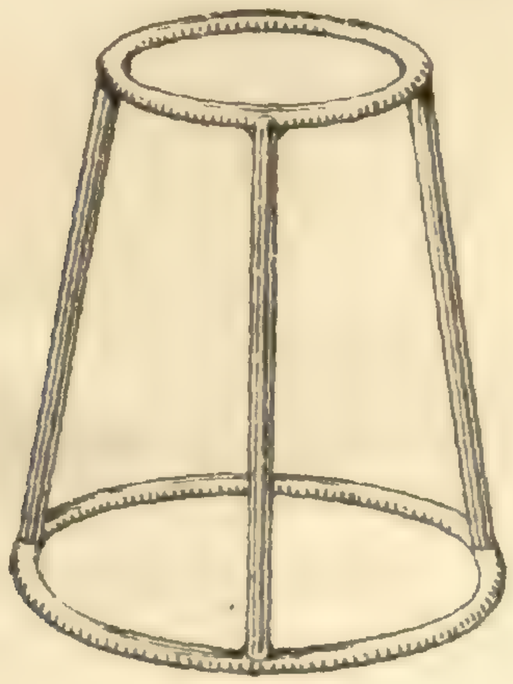

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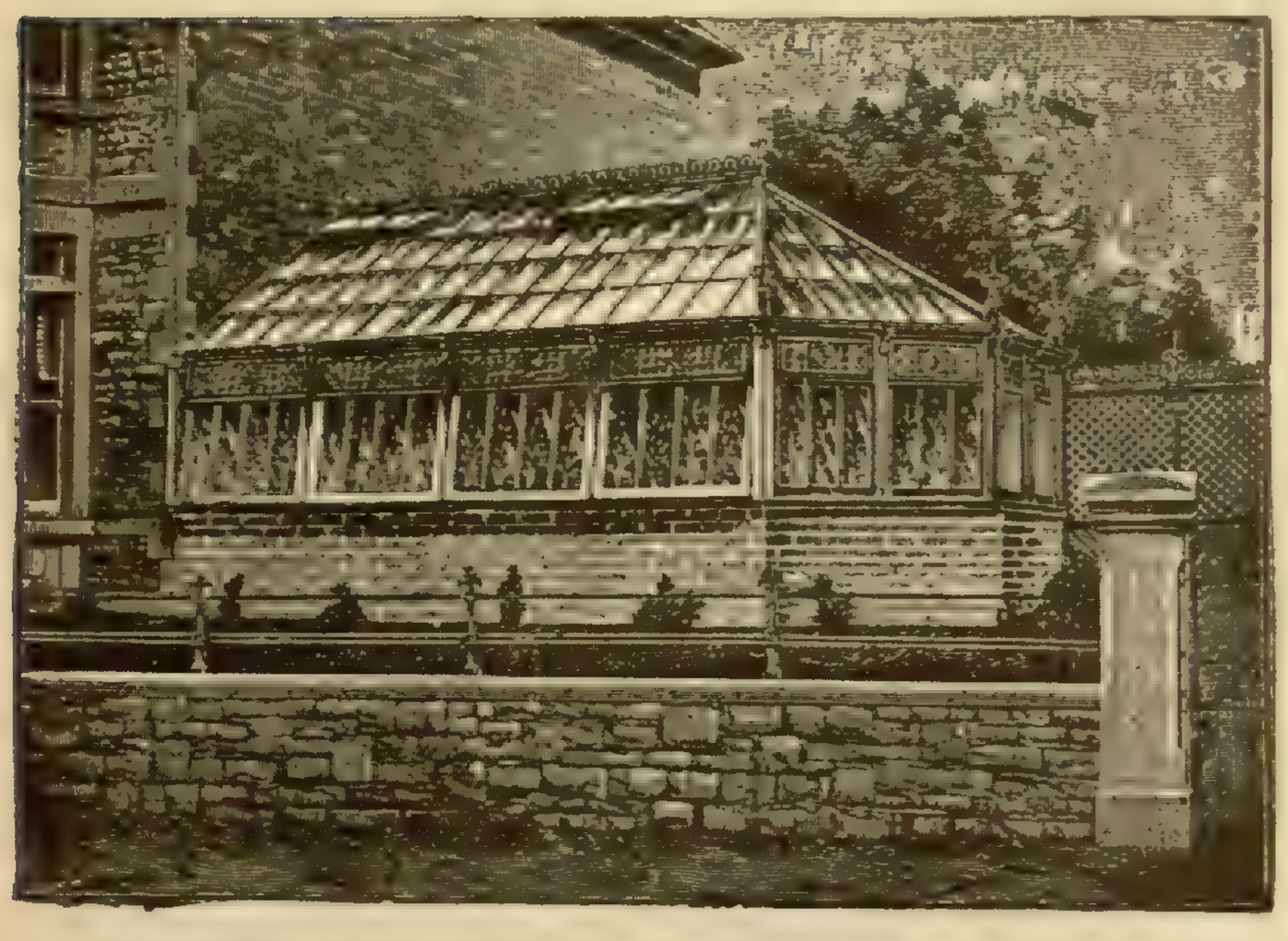

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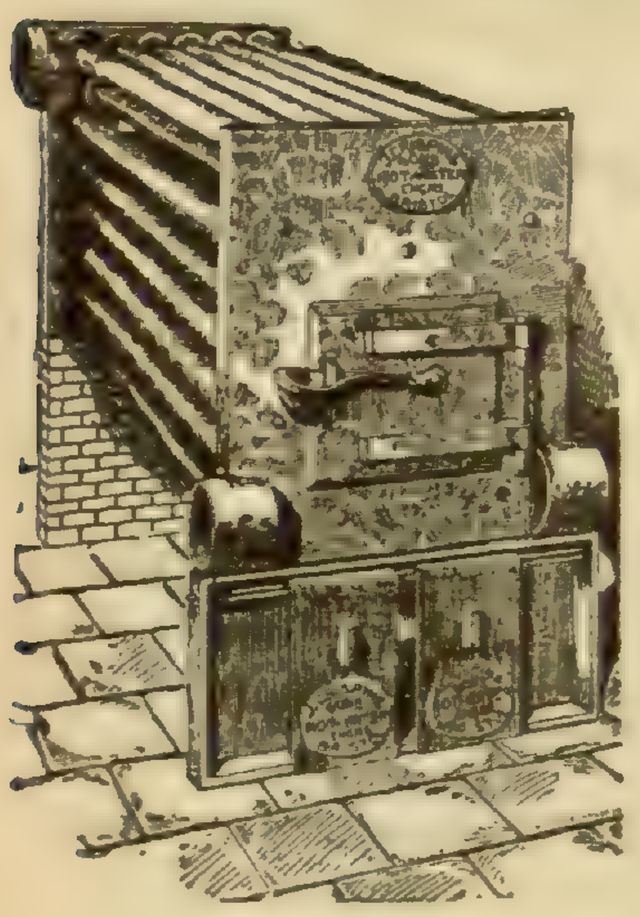

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VOL. X.] NOVEMBER, 1902. No. 119.

THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *NOVEMBER*, 1902. [No. 119.

COLOUR PHOTOGRAPHY.

AT the Royal Horticultural Society's meeting held at the Drill Hall, Westminster, on Oct. 21st, there was a very interesting exhibition of photography in natural colours, by Mr. T. Knight Barnard, of The Grove, Hammersmith, including Orchids, vases of flowers, landscapes, &c., in which the shapes and natural colours of the objects were reproduced with remarkable fidelty. The objects shown were not coloured photographs in the ordinary sense, but what may be termed photographic colour records, which are placed in a special viewing instrument, comparable to the stereoscope, to produce the effect mentioned. The colour records can be multiplied indefinitely, and we believe that Mr. Barnard intends to place them, together with the viewing instrument, upon the market, so that anyone possessing them can at a few moments' notice produce the pictures for the delectation of his friends. And with the special camera necessary one could secure permanent records of his favourite Cattleya, or his choicest variety of Odontoglossum crispum for future use. One can fancy the utility of such a set of records at the Sale Rooms, when some special variety was to be disposed of. Indeed the possibilities of the system seem endless, if the cost is not prohibitive.

The principle is based upon what is known as the Young-Helmholtz theory of colour vision, which assumes that there are three fundamental colour sensations, a red, a green, and a violet, and that all other colours are compound sensations, or combinations of the same. The application of the principle is as follows:—Three negatives of any object are taken with screens of the three colours mentioned above, which allow their own kind of colour rays to pass, while cutting off those of the other two kinds. From the three resulting negatives three ordinary positives are now made, and these are viewed through three suitably coloured glasses, and afterwards combined to give the desired picture. We are unacquainted with the details, but a further extension of the process, in which the three positives are combined to form pictures in natural colours, by what is termed photographic three-colour printing, is one in which many of our readers are interested, and

the question has been asked how far the process has come within the range of practicability? The answer is somewhat difficult, for there are technical difficulties involved, but we have seen pictures of Orchids which, if not exact reproductions, were quite unmistakable. A recent issue of *Le Jardin* (August 5th) contained two "photochromogravures" showing combinations of Oncidium Marshallianum, Odontoglossum crispum, and Cattleyas, with graceful foliage plants, which were exceedingly effective, and show the possibilities of the system. And we believe that the difficulties at present encountered will be overcome in course of time.

The pictures mentioned are obtained thus. Half-tone blocks of the three positives before mentioned are made, and these are printed in their own proper colours, and in correct register. The positive prepared from the photograph taken through the violet screen is printed in yellow, that through the green screen in pink, and that through the red screen in cyan-blue. They are printed thus: First the yellow, then the pink impression upon the yellow, and finally the blue impression upon both; which reproduces the original picture. The combined print is often a very pleasing reproduction of the original, but there is a granular appearance about it (due to numerous minute dots) which detracts from its beauty. This, however, is absent from reproductions in collotype. A greater difficulty is at present encountered in obtaining colours which are at once permanent and of the exact shade required. For example, the only colour which gives approximately the correct shade of pink is rhodamine, one of the coal tar colours, but, unfortunately, it fades in a few hours, and the nearest substitute which is permanent does not give an absolutely correct result. Truth of form it achieves absolutely, and the defects of the system are due to the mechanical difficulty of applying an absolutely correct theory. When proper pigments are used, with correct registration, the results are almost beyond criticism, and if such a high standard has not at present been uniformly attained it is likely that the difficulties will be overcome in course of time.

It may at first appear difficult to understand why the separated violet rays should be printed in yellow, the green rays in pink, and the red rays in blue, but the explanation is as follows:—To take the yellow first. Yellow is made up of red and green colour sensations in the absence of violet, and therefore a clear yellow patch in the orginal object would contain no violet rays. But this same yellow patch would pass its 50 per cent. of green rays through the green screen, and its 50 per cent. of red rays through the red screen, these being recorded in the resulting negatives. Similar remarks apply to the selective influence of the colour screens upon the other two kinds of colour sensations, red and green. But the resulting negatives cannot be combined at this stage, for the result

would only be a combined negative. Three positives must therefore be made, and in these everything is necessarily reversed. We cannot now reproduce the yellow patch just spoken of from the combination of red and green without violet, but owing to the reversal we can get it by another process, namely by printing directly in yellow, which is composed of red and green without violet. Thus the yellow is also termed "minus-violet," and correspondingly the pink is termed "minus-green," and blue "minus-red." Now in printing the three positives in colour, first the minus-violet, second the minus-green, and third the minus-red, the result in the case of the yellow patch spoken of would be that the minus-violet, or yellow, alone would leave an impression at this point, the pink and blue being passed over blank, hence the original yellow would be reproduced. Whatever amount of the primary colour sensations, separately or combined, was present at any point of the original, these would be sorted out by the selective influence of the colour screens, and re-combined in the subsequent process to produce the original picture, even white and the darkest shades, and thus an image of the original object is formed in its natural colours. All these different details can be optically demonstrated in the triple lantern, just in the same way that a ray of white light can be broken up into its component elements by the spectroscope.

The production of lantern slides or transparencies on the same principle has already attained remarkable success. From the three negatives, previously mentioned, three coloured prints are prepared upon special transparent media, which when mounted in superposition exactly reproduce the object photographed. These pictures may be viewed in the hand, or used as lantern slides, and while as transparent as the best hand-coloured slides are infinitely superior in delicacy of detail, some which we have seen being remarkable for their life-like accuracy. The special form of camera and the necessary materials can also be obtained, or the apparatus necessary may be fitted to an ordinary camera.

We believe that Colour photography is rapidly passing into the practical stage, and we hope before long to see it applied more fully to the illustration of our favourite Orchids.

We may add that a most graphic lantern demonstration of the process was given by Sir Henry Trueman Wood at the Royal Society's Conversazione on May 14th last. The demonstration is thus described in the Catalogue :—"The application of Photography to the production of Pictures in Colour.—In the 'Three-colour Process' three separate photographs are taken by monochromatic lights corresponding to the three primary colour sensations. These photographs in combination are then caused to reproduce with approximate accuracy the natural colours of the object :—(a) by illuminating three monochromatic positives with suitable coloured

lights and projecting the images together by means of a triple lantern ; (b) by obtaining three positives with suitable dyes, and superposing them to form an ordinary lantern slide; (c) by making three typographic blocks, and printing from them in coincidence with inks of suitable colours." Examples of each kind were shown. There was also a remarkable exhibit by Messrs. Sanger Shepherd & Co., of Natural Colour Photography, with examples of its applications and the necessary appliances (including photographs of Orchids and other flowers) ; while Prof. H. A. Miers, F.R.S., exhibited some collotype prints, prepared at the Oxford University Press, showing the beautiful colour effects of the polarisation of light produced by certain crystals.

INCORRECT RECORDS.

A SHORT time ago a correspondent wrote asking the question as to how incorrect records should be dealt with. We replied that the only practical method which we could suggest was to correct them as soon as a mistake was discovered. The question, however, is not so simple as it looks. The case specially put forward was this. A raises a hybrid Orchid, names it, and states what he considers to be its parentage, these particulars all being recorded. Unfortunately the alleged parentage is erroneous, though the mistake is not detected. B afterwards raises a *bona fide* hybrid from the two species in question, and also names it. The methodical recorder, C, now comes along, and says, "Oh! this was raised years ago by A," and accordingly changes the name. Meantime A's plant has been lost sight of, perhaps found to be only a synonym of some older form, but the fact unrecorded. C may not have seen A's plant at all; had he done so he might have detected the mistake, and thus have avoided the confusion involved by his alteration of B's name. Ultimately he does come into possession of all the facts, and the question arises should he then try to put things straight? We see no reason to modify the answer given above.

We may now give an example of the way some of these mistakes arise. In reporting the last R.H.S. meeting at the Drill Hall, the *Gardeners' Chronicle* records (page 313) :—"Cypripedium × Francis Heygate (Charlesworthii × Mastersianum)." Fortunately we saw this plant at the meeting in question, and discussed it with several other Orchidists. In the first place there was a "?" prominently attached to the record of parentage (we cannot say who placed it there), and in the second place we unanimously agreed that it was a small form of C. × Crossianum, the characters of C. venustum and C. insigne being quite obvious. It now remains to be seen what will happen when a *bona fide* hybrid between C. Charlesworthii and C. Mastersianum appears.

SIEVKINGIA SUAVIS.

THIS curious little Orchid, though described as long ago as 1871 (*Rchb. f. Beitr. Syst. Pflanzenk.*, p. 3), has remained practically unknown down to the present time, but now what appears to be the same thing has flowered in the collection of Sir Trevor Lawrence, Bart., Burford, Dorking. Mr. White remarks that it was received from Consul Lehmann, in 1900, as Sievkingia sp. The original S. suavis is said to have been imported from Costa Rica by Endres, and flowered in the Hamburg Botanic Garden in 1868, and again in June of the following year. Sir Trevor's plant agrees with the description completely, so far as it goes, and may therefore be considered as identical. It has the habit of a miniature Stanhopea bearing a tuft of small ovoid pseudobulbs, terminating in a single elliptical-oblong acute leaf, about 5 or 6 inches long, and bearing at its base a short pendulous scape of two or three flowers, which further resemble Stanhopea in being rather fugacious. The sepals are ovate, acute, concave, ¾ inch long, and greenish yellow in colour; the petals smaller and deep yellow, and the lip ventricose, ovate, and deep yellow, with a few minute blackish dots inside and some larger ones on the basal crest. From the latter proceeds a linear keel, which terminates in a bilobed scale about the middle. Three other species are now known, namely S. Jenmani, Rchb. f., S. fimbriata, Rchb. f., and S. Reichenbachiana, Rolfe (*Bot. Mag.* t. 7576), the latter alone being in cultivation.

R. A. ROLFE.

THE HYBRIDIST.

LÆLIO-CATTLEYA × CONSTANCE WIGAN.—At the R.H.S. meeting, held on October 7th, a very interesting Orchid was exhibited from the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, under the above name. It is a hybrid between Lælia xanthina ♀ and Cattleya Rex ♂, and clearly shows its descent. The flower kindly sent to us most resembles the Lælia parent in general character, having bright buff yellow sepals and petals, but the latter are considerably broader, measuring at present 1¼ inches across. The lip is entire, very gracefully undulate, rather paler yellow in colour, and bearing deep yellow radiating lines on the red-purple disc, in front of which is a bright rose-crimson blotch. The two latter characters strongly recall the Cattleya parent. It is a charming little plant, and has obviously not yet reached its full development.

LÆLIO-CATTLEYA × IRA.—We have now a hybrid from the curious little Lælia longipes to record. It also was exhibited by Sir Frederick

Wigan at the R.H.S. meeting on October 7th, and Lælio-cattleya × Schilleriana is recorded as the pollen parent. The two-flowered scape has now been sent to us, and Mr. Young remarks that the vegetative organs show the influence of L. longipes very strongly, the bulbs being short and round, and the leaves stout and thick. The same influence is apparent in the scape, and shape of the flower, but the size is increased to four inches in diameter. The segments are spreading, with the petals slightly broader than the sepals, and the colour deep lilac-purple. The lip is strongly three-lobed, much like an enlarged edition of L. longipes, with the very undulate front lobe and apex of the side lobes very deep rich purple, the throat deep yellow, and the tube white tinged with lilac. It is an interesting and pretty little hybrid.

BRASSOCATTLEYA × CHAMBERLAINIÆ.—We have now another striking hybrid from Brassavola Digbyana to record, the seed parent being Cattleya quadricolor, Lindl., usually known under its later name of C. chocoensis. The hybrid has now flowered in the collection of the Right Hon. J. Chamberlain, M.P., and was exhibited at a meeting of the Royal Horticultural Society on October 21st, when it gained an Award of Merit. The flower kindly sent has the general shape of other B. Digbyana hybrids, but the colour is lighter than in most others, the sepals and petals being blush white, very slightly tinged with pink, and the lip pale blush pink, with a light, greenish yellow disc. The petals are at present just over 4 inches long by $1\frac{3}{4}$ inches broad, and the lip is broad and ample, and fringed in the usual way. It is a charming addition to the group, and is dedicated to Mrs. Chamberlain.

CATTLEYA × WINNIANA.—A pretty little hybrid has just flowered in the collection of the Right Hon. J. Chamberlain, M.P. It was purchased from the Winn collection as a seedling from Cattleya Gaskelliana × Aclandiæ, but there must have been some mistake in the record, for there is not the slightest resemblance to C. Aclandiæ in the flower. On the other hand it has a lip closely analagous to C. Forbesii, both in shape and in the very characteristic veining of the disc—the latter being invariably present in hybrids of this species. In general shape, too, it much resembles this species. The other parent may have been C. Gaskelliana, as the more membranaceous flower and lilac-purple colour is what might have been expected, though the resemblance in shape is not very obvious, for the lip is strongly three-lobed. The segments, however, are enlarged and the petals broader. It has obviously not yet attained its full development.

CATASETUM OCHRACEUM.

In my paper on the Sexual forms of Catasetum (*Journ. Linn. Soc.*, xxvii, pp. 206-225, t. 8) I gave an enumeration of the species of the genus of which both sexes are known, the number being sixteen. Seven others have since appeared, bringing the number up to twenty-three. An additional one may now be added to the list. In the *Day Collection of Drawings*, xxxviii, t. 35, is a drawing of a Catasetum, with the date September 4th, 1883, and the following note:—"This is a very curious Catasetum, drawn at Messrs. H. Low & Co.'s, who sent a scape with flowers to Prof. Reichenbach. He returned a Post Card thus:—'Your flower is of the fairer sex, a lady flower, a Monachanthus. It is very well answering the Doctor's (Lindley) Catasetum fuliginosum, *Bot. Reg.*, 1841, Misc., 168. Now it is quite possible that another time the flowers of C. ochraceum appear on the same plant, the gallant male with the long tendrils!!'"

Singularly enough Mr. Day had drawn C. ochraceum on July 20th previous (*Day Coll.*, xxxiv, t. 91), noting it as follows:—"The ugliest of the genus that I have ever seen. I saw it in flower at Messrs. Hugh Low & Co's., who gave me the spike to draw. The plant is just like other Catasetums, but the bulbs are more slender than some. Labellum very fleshy, veined inside with nearly parallel green veins. Mr. Low says he believes it was imported from New Granada." He afterwards made the additional note:—"This is the male flower of Catasetum fuliginosum, Lindl., which is drawn in *Sc. Bk.*, xxxviii., 35. See that and Prof. H. G. Reich.'s remarks thereon."

Catasetum ochraceum was originally described by Lindley in 1844 (*Bot. Reg.*, xxx, Misc. p. 44). It had been sent from Hacienda del Hospicio, in the province of Bogota, by Hartweg, and flowered in the Horticultural Society's garden. Mr. Day's male flowers are correctly named, and I have no doubt that his females represent the other sex of the species, but I think that they cannot belong to Catasetum fuliginosum.

C. fuliginosum was described three years earlier than the preceding (*Bot. Reg.*, xxvii, Misc. p. 78), from a plant which flowered in the Duke of Northumberland's collection, at Syon House. It bore a scape of eight flowers. Nothing seems to have been known of its history. Lindley remarked that it had quite the habit of C. tridendatum, and described the flowers as deep green in colour, "spotted with a dull blackish purple, so as to look as if they were soiled with soot," the sepals and petals spotted, and the lip stained with purple. Mr. Day's females are quite unlike this, being unspotted, with the sepals and petals dull greenish yellow, and the lip more ochre-coloured; in fact, scarcely differing from the males in this respect. I think it may be safely said that we now know both sexes of

C. ochraceum, but that the females do not belong to C. fuliginosum, Lindl., as Reichenbach supposed.

The identity of the latter still remains somewhat uncertain. Lindley originally remarked of it:—"Judging from the evidence we possess concerning C. tridentatum, cristatum and viride, we should suspect it to be a male form of C. atratum, or some such species. That, however, must remain for future enquiry." Unfortunately, the matter cannot yet be fully cleared up, but we now know that the sex is the reverse of what Lindley supposed, though his suggestion as to its specific identity may be very near the mark. The female of C. atratum is now known, and proves to have some dingy blackish spotting about it, but that of C. trifidum is also much spotted with brown, as described at page 201 of the present volume. The point may be cleared up hereafter, but it is unfortunate that the opportunity of comparing these plants in a living state so seldom occurs.

CATASETUM QUADRIDENS ♀.

SINCE the foregoing was written the female flower of an additional species of Catasetum has appeared, namely C. quadridens, Rolfe. The species was described in 1901 (*Kew Bull.*, 1901, p. 149) from a plant which flowered in the Kew collection in December, 1898. It was purchased, with others, at the sale of the Hon. Walter Rothschild's collection; beyond which its origin is unknown. The unique plant has produced a male inflorescence on two or three occasions, but this year it has varied the proceedings by sending up a female inflorescence of three flowers. The species is allied to C. cornutum, Lindl., and the male flowers have green sepals and petals heavily blotched with dark brown, and a light yellow lip much spotted with brown, and fimbriate-dentate at the sides. They are further remarkable in possessing a pair of small teeth on the column in addition to the usual pair of antennæ. These peculiarities may be seen at t. 7864 of a forthcoming part of the *Botanical Magazine*. The female flower is, of course, utterly different. The lip is superior, of the usual galeate shape, nine lines high, by eight lines broad, with an entire mouth six lines across. The colour is green outside, but dull yellowish green inside, with many dwarf longitudinal ribs, and numerous small dark brown dots, principally on the ribs. The sepals and petals are reflexed, ovate, and apiculate, the former about four and the latter seven lines long, and light green in colour, with a few small brown dots at the apical margin of the petals. The column is very stout, with a small abortive anther case at the apex. Two of the flowers fell off just before expansion, but the other developed perfectly. It is interesting to add that a plant of Catasetum Naso, Lindl., in the collection produced a female inflorescence of three flowers a few weeks earlier.

R. A. ROLFE.

ODONTOGLOSSUM × ADRIANÆ VICTORIA-REGINA.

At the Royal Horticultural Society's Meeting held at the Drill Hall, Westminster, on April 8th last, a magnificent variety of Odontoglossum × Adrianæ was exbibited from the collection of Baron Sir H. Schröder, The Dell, Egham, under the name of O. × A. memoria Victoria-Regina, to which a First-class Certificate was given, as recorded at page 144. One of the flowers was photographed by Mr. G. I'Anson, of Bush Hill Park, and from a copy kindly sent by him the annexed illustration has been prepared. The photograph shows its remarkable character better than the longest description, and we need only add that the ground colour is white,

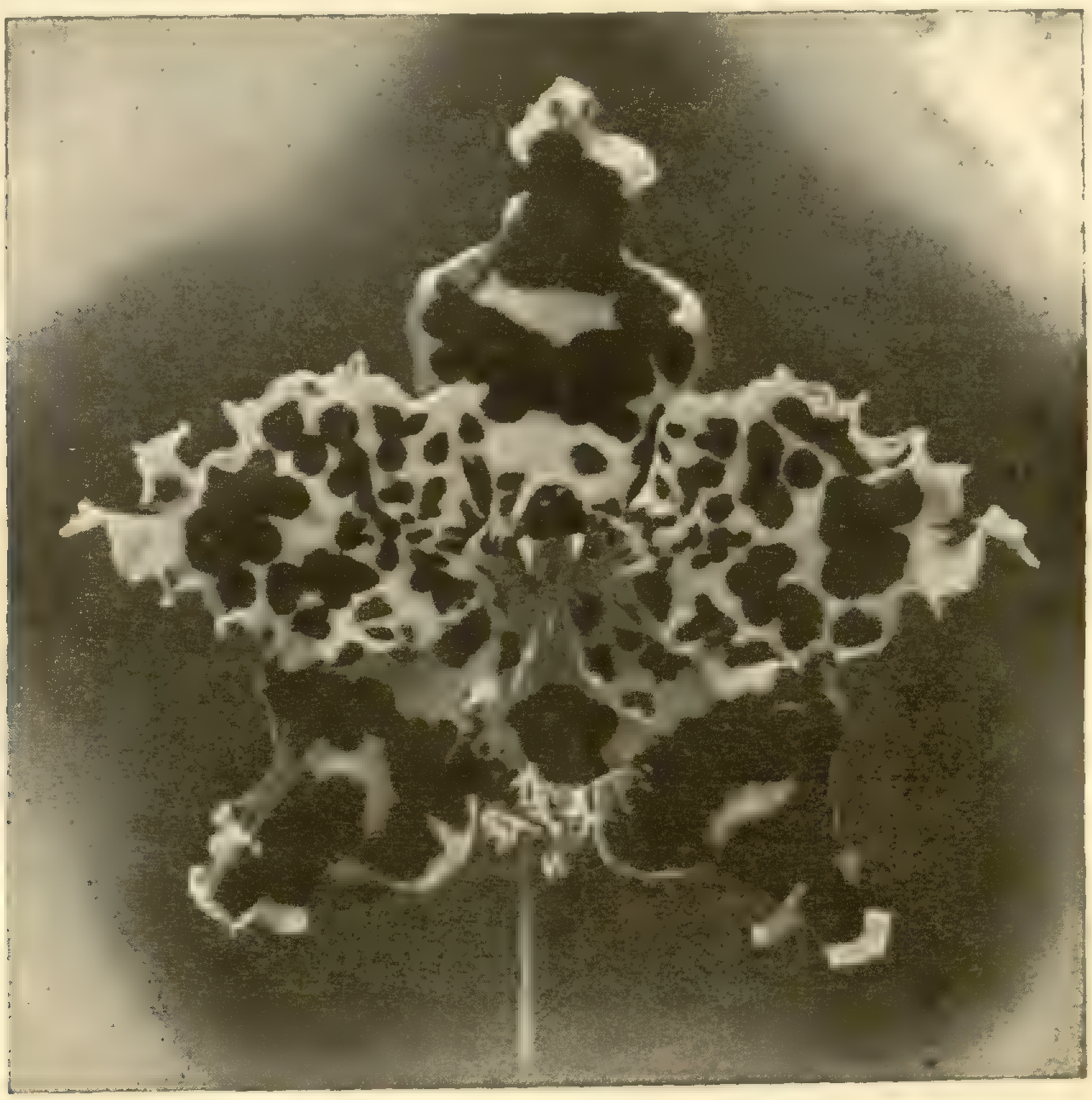

Fig. 35. Odontoglossum × Adrianæ Victoria-Regina.

and the markings dark purple. The shape is excellent, and owing to its colour, and the number and arrangement of the blotches, it must rank as one of the finest varieties of this beautiful Odontoglossum yet known. O. × Adrianæ orginally appeared in cultivation in the spring of 1897, in the establishment of Messrs. L. Linden & Co., at Moortebeek, and quite unexpectedly, in an importation of O. crispum, being at once recognised as a natural hybrid between that species and O. Hunnewellianum. It is now fairly common in cultivation, and proves to be remarkably variable, both in colour and markings. Its history was given at pp. 179, 180 of our sixth volume.

CATTLEYA PORPHYROGLOSSA.

THIS is a very rare species of Cattleya, whose history has been much confused. It was originally described in 1856 (Lind. and Rchb. f. in *Allg. Gartenz.* xxiv, p. 98) as a native of Santa Catherina, Brazil, sent by Director Linden, of Brussels. It was said to be allied to C. granulosa, but the flowers only half as large; the sepals and petals yellowish brown, and the lip purple, with the unguis of the front lobe very narrow. A year later a plant flowered with Consul Schiller, at Hamburg (*Allg. Gartenz.* xxv, p. 336.) The plant remained rare for some time, but in 1866 Reichenbach remarked that there were some specimens of the original type scattered about on the Continent.

In 1862 this author described the plant as Epidendrum porphyroglossum (*Xen. Orch.* ii, p. 33), but without adding anything to its history, though he cited as a synonym Cattleya amethystoglossa, Lind., a plant then undescribed, but which afterwards proved to be very different. These two plants now became hopelessly confused, for in 1866 Reichenbach described what was really a new variety of the former as C. amethystoglossa var. sulphurea (*Gard. Chron.*, 1866, p. 315). This had been introduced by Mr. Stuart Low, and its flowers were said to be nearly or quite of as pure a lemon colour as those of Cattleya citrina, with the lip cream-coloured. Reichenbach then remarked:—"In England the species has not been well understood, Mr. R. Warner having unfortunately represented the splendid white and amethyst variety of C. guttata, which we have called Prinzii, in lieu of the true plant." A woodcut typical of C. amethystoglossa was given as an illustration of the new variety. This note brought a reply from Mr. Warner (p. 365) to the effect that the plant was obtained from M. Linden many years before under the name attached to it, and that he was not responsible for any error that there might be in the name.

In 1873 Reichenbach figured the plant as Epidendrum porphyroglossum (*Xen. Orch.*, ii, p. 172, t. 171, fig. 1, t. 172, fig. 2), but still wrongly included Cattleya amethystoglossa, Lind., as a synonym, besides explaining that his Epidendrum amethystoglossum (*Walp. Ann.*, vi, p. 319) was a slip for E. porphyroglossum. The latter was based upon Cattleya amethystoglossa, Lind. and Rchb. f., and no description is given, but a flower which he sent to Lindley labelled C. amethystoglossa (now preserved in the latter's Herbarium) belongs to C. porphyroglossa, and so far bears out Reichenbach's remark.

The plant was afterwards imported by Messrs. Hugh Low & Co. Mr. Day has a painting (*Day Coll.*, xii, t. 57), dated July 6th, 1867, with the note:—"From Low & Co. Imported from Brazil, in 1864, with Cattleya Harrisoniæ, which as regards the habit of the plant it much

resembles." This would seem to extend the habitat to the Rio district. This plant is also labelled C. amethystoglossa, but afterwards corrected in pencil to C. porphyroglossa, evidently when the *Xenia* figure appeared, for the reference is also written on the sheet.

Messrs. F. Sander & Co. also introduced the species from the province of Minas Geraes, and flowered it in August, 1891, and on the 8th of the following month they exhibited it at a meeting of the R.H.S. as C. granulosa var. Dijanceana (*Gard. Chron.*, 1891, x, p. 310). Finally it seems to have settled down to "C. Dijanceana, a supposed natural hybrid."—See *Orch. Rev.*, vii, 332.

Thus the plant has a rather chequered history, and it is interesting to clear the matter up. It is a good species, most allied to C. granulosa, but with flowers only half as large; the sepals and petals varying from yellowish brown to greenish, rarely clear yellow (var. sulphurea), and the narrowly unguiculate front lobe of the deeply divided lip bright rose-purple.

R. A. ROLFE.

CULTURE OF ORCHIDS IN LEAF-MOULD.

ODONTOGLOSSUM GRANDE is invariably seen to diminish under cultivation; opinions vary as to the cause, though I think it is often from fear of disturbing them for repotting. The species being a favourite here, and many of them failing yearly to flower, I potted most of them in leaf-mould, the result being that they have flowered well, besides finishing off good bulbs; whilst those that were potted in the old way have not flowered, and also those that were not repotted.

Having a lot of weak unsatisfactory Lælia purpurata, I had them potted in leaf-mould this year, and they have made strong bulbs, with lovely flower sheaths, whereas my strong big plants are behindhand, still making their bulbs. Who does not know that after shaking out L. purpurata plants, and repotting them, they often lose a year's crop of flower? But those potted as above are all showing for flower.

Dendrobiums under trial in leaf-mould are a grand success. D. nobile has made bulbs just twice the length of the old bulbs, and D. Phalænopsis, potted in the same way, has made bulbs twice as long as the old ones, and flowered wonderfully well. One six-inch pot, in which was placed four bulbs taken from the top of some old bulbs, has now eleven bulbs and thirteen flower spikes, and this after six months culture in leaf-mould. Formerly I never gave this Dendrobe any room in pots, and I see that plants potted in the usual way have made new bulbs of the same length as the old ones.

The best results here this year from the use of leaf-mould are the plants

of Oncidium varicosum Rogersii. Growers know how difficult it is to cultivate some sorts of Oncidiums successfully for even three years after importation, and O. varicosum is no exception to this. Having a lot of plants here I potted half of them in the leaf-mould. Those potted in the old way, and those not repotted, have made bulbs from one to one and a half inches in height, and those in leaf-mould have made bulbs over four nches high, nicely furrowed, and showing nice flower spikes.

Weak pieces of Cattleya Mendelii, Warneri, Mossiæ, and labiata, which I am trying in leaf-mould, are progressing so well that I mean next year to risk potting a lot of C. gigas in it too, as I think they will then not need watering. will also try Lælia anceps of the alba types, which latter will need care.

I may say that I mix some moss tops in among the leaf-mould to keep it open and sweet, and finish off with a layer of rough peat and moss, which keeps the mass of compost from drying on the surface sooner than underneath. This top course is put on in the way gardeners call quartering, *i.e.*, in pieces of moss and peat alternately. JAMES HAMILTON.

Duns, N.B.

In answer to your enquiries respecting my experience with leaf-mould, I may say that I first tried it nearly two years ago on some very old and worn out Cattleyas, Mossiæ and Trianæ, and the general result was surprising, for some of the plants, which I thought would never come round, have done remarkably well and this is their second season in their new compost. Being satisfied that with careful watering and attention the new method was far away the best, we commenced putting everything in it as the plants required potting, and this autumn I have put fifteen hundred Odontoglossum crispum in it—after, of course, trying a few in it for a season—and they are taking to the new compost very well, and pushing fine strong growth.

In using the leaf-soil we find it best to sift out most of the fine decayed matter, as if left in it is inclined to get sodden. Afterwards we mix in a little peat fibre and chopped sphagnum moss, which keeps it more open than it would otherwise be, and then surface with nice green moss.

My experience, which is only two seasons old, is that the plants require very little water at the root, but more spraying between the pots, and on the stages; more light, and a little more air. I should be very glad indeed if some older grower would give his experience with this material in your valuable paper. GEO. G. WHITELEGGE.

Old Southgate, N.

[The group of Cattleya × Mantinii figured on page 337 speaks for itself,

and the plants have been in this compost for two seasons. And the group of Orchids staged by Mr. Bradshaw at the last R.H.S. Meeting were in excellent condition, especially a number of plants of Odontoglossum grande, some Cattleya labiata and a plant of Masdevallia Veitchiana, all of them being in the most robust health, and equally floriferous.—Ed.]

Mr. W. P. Bound, gardener to Jeremiah Colman, Esq., Gatton Park, Reigate, is of opinion that a portion of leaf-mould will in the future be used in most Orchid composts, as he finds that it is of assistance to most Orchids. He uses it in a proportion of about one-fifth, but finds that additional care is required in watering. Just sufficient to damp the compost should be given, and frequently damping between the pots is better than direct application to the compost. He has tried the best English oak leaf-mould, but prefers that from Belgium, though it looks like rubbish compared with the other.—*Gard. Chron.*, p. 270.

Mr. A. Harrison, Beech Lodge, Roundhay, Leeds, has used Oak-leaves for about two years, more particularly in potting Oncidiums and Odontoglossums, and in all cases with good results. He uses them soon after they have fallen, rubbing them with a coarse-meshed sieve, to break them up, and shaking out the smaller particles, afterwards adding a sprinkling of fresh moss, a little fibrous peat, and a few small pieces of charcoal, and mixing all together. He uses a shallow layer of drainage, pots moderately firm, and surfaces with a little fresh moss. The roots permeate this compost like those of ordinary plants, and he finds that they want more water than when in peat and moss, but the leaves do not get sour nearly so soon. The term "leaf-soil" he thinks inapplicable, for at first he tried thoroughly decayed leaves, which formed a fine soil, became sodden, and the plants in consequence failed to thrive. But the more open mixture is a success, for exhausted plants, Oncidiums especially, commence a new life, and grow and flower perfectly.—*l. c.*, p. 290.

Messrs. Charlesworth & Co. have adopted the new treatment extensively, and with great success, as pointed out at pages 250 and 298 of our last volume, and some further details which they now give are important. For years experiments with "terre de bruyère," and some modifications of it, had been made at Bradford, though with little success, but experience proved that all soil or mould had to be got rid of, and decayed leaves procured having no more soil among them than is usually found in Orchid peat. Oak leaves, sufficiently decayed to be rubbed through a coarse-meshed sieve, were found to be the best, and these are now only used. All sticks and rubbish are first removed, and after the material has been rubbed through

the coarse sieve, a fine meshed sieve is used to get rid of the fine particles and dust. The result is a flaky material, quite unlike what is often termed leaf-soil.

Some brown fibrous Orchid peat is now selected, broken up by hand, and the earthy particles sifted out and rejected, the fibre being used in varying proportions with living sphagnum moss, of the short growing, small kind; not the long fleecy variety, which does not give such good results. The materials are prepared and kept separate until wanted for use. For Cattleyas, Lælias, and Odontoglossums about one-half leaves is used, the remainder being made up of the two materials, but for Calanthes, Phaius, Sobralias, and strong-growing Cypripedes, and Orchids of a similar nature, a small proportion of fibrous yellow loam is added. For Aërides, Saccolabiums, and Vandas the amount of sphagnum is increased, but for Miltonias, Oncidiums, and Odontoglossum Edwardi considerably more than half the compost consists of leaves. By mixing as required for use the proportions can be varied as desired.

The mode of potting is uniform. First a large crock is put in, concave side down, then an inch or so of broken crocks and charcoal, with a layer of sphagnum moss to keep the drainage clear. The plant is now inserted, and held with one hand while the compost is filled in, and lightly pressed between the roots. The filling extends to within half-an-inch or an inch below the rim of the pot, after which a good layer of sphagnum moss is placed on the surface, which rises to a similar distance above the rim.

Plants so potted, it is said, can be watered in the same way as those in ordinary peat and sphagnum, for the drainage is perfect; but without the careful preparation mentioned above, and with much decayed materials, the greatest care must be taken to prevent the materials getting too wet, and it is in this point that the trouble with such material is experienced.

The distribution of moisture seems to be one of the most important points in Orchid culture, and for this purpose the sprayer is gaining steadily in favour. For young seedlings in pans it is said to be a foster-mother, and for plants in all stages its judicious and frequent use is highly beneficial. Of course the compost is not everything, and when Orchids fall into bad health it is equally important to find out whether the heating, ventilation, watering, or some other detail is not at fault. If such is the case the defect should be at once remedied or the plants will benefit but little, whatever potting material is used.—*l.c.*, p. 292.

We believe that the autumn is a good time in which to collect Oak-leaves, just before the new crop falls.

ODONTOGLOSSUM × DENISONÆ.

SOME of the forms of the remarkably polymorphic Odontoglossum × Denisonæ having a white ground colour are not easily distinguished from O. crispum, yet there are peculiarities about the shape of the flower, and especially the lateral teeth of the crest, which can be traced to the influence of O. luteopurpureum. Such a form has just been sent from the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, by Mr. Young. It bears the varietal name "Sir Frederick," and was at first thought to be a form of O. crispum. It is extremely fine, measuring over $4\frac{1}{4}$ inches across its greatest diameter, and the segments are broad, undulate, and markedly acuminate at the apex. The ground colour is clear white, with a faint tinge of rose in the sepals, and the blotches are large, rounded, partially confluent, and cinnamon brown in colour. There are two similar blotches on the front of the lip, and a number of smaller spots on either side of the yellow crest. It is a handsome variety, and the blotches are very regularly distributed between the segments.

Another handsome variety is sent by Mr. Fl. Claes, Etterbeek, Brussels. It flowered for the first time about two years ago, and was exhibited under the name of O. crispum Madame Florent Claes. The crest, however, has distinct lateral teeth, as in the variety formerly known as O. crispum Golden Queen, which is now considered to be a hybrid between O. crispum and luteopurpureum. Indeed the present variety closely resembles the one just mentioned, as may be seen by comparison with the original figure (*O. R.* v, p. 113, fig. 6), but the ground colour is lighter, being cream yellow in shade, the spots of the petals rather smaller, and there are only two instead of three groups of blotches on the lip. The petals are also less toothed, but in other respects, and especially in the broad segments, the two are very similar. The lip is much deeper in colour than the sepals and petals, and it is certainly very handsome, though we think it must now be transferred as a variety of O. × Denisonæ. When shall we have an artificial hybrid between O. × Denisonæ and O. crispum with which to compare some of these difficult wild forms?

THE LATE HENRY JAMES ROSS.

IN our Obituary notice of the late H. J. Ross, Esq., of Florence, we mentioned (page 282) a forthcoming work entitled "Letters from the East, by Henry James Ross, 1837 to 1857." A copy has now been sent to us, and as the subject is outside the scope of this Journal we must briefly say that it is a very interesting volume, and shows Mr. Ross to have been as close an observer of men and things in his earlier life as in later years he

was of the beautiful group of plants which formed his principal hobby. And we may supplement our notice by the following note from its pages:—"In 1857 Mr. Ross became a partner in the house of Briggs & Co., in Alexandria, and three years later he married Janet, the eldest daughter of Sir Alexander Cornewall Duff Gordon. They remained in Egypt until 1869, and then settled in Italy, where Mr. Ross was at last able to indulge his passion for flowers, and became known as an enthusiastic cultivator of Orchids." His niece, Miss Lina Duff Gordon, contributes a brief sketch of her uncle as she knew him during the last ten years of his life, in which she remarks:—"My uncle dedicated himself to the cultivation of Orchids with the same enthusiasm he brought to bear on anything he undertook. Hours were spent every day with his Tuscan gardeners repotting and examining the precious plants, and watching eagerly for a sign of colour in the buds of a new prize among the flowers. To be taken through the Orchid house by him was to realise to the full the pleasures of gardening." The volume contains three portraits of Mr. Ross, taken at different periods.

OVERHEARD AT THE DRILL HALL.

BOTANICUS. "Here, you of the Orchid Committee. Why did you alter that name? Brassocattleya was correct."

ORCHID COMMITTEEMAN. "We call them all Lælio-cattleya."

B. "But it's wrong for all that: Brassavola Digbyana is not a Lælia."

O. C. "The *Genera Plantarum* says it is."

B. "The *Genera Plantarum* says Mormodes luxatum is a Catasetum, but that doesn't make it one. Brassavola Digbyana has the long-beaked ovary of Brassavola: Lælia has no beak at all. Lindley named the plant correctly in the first place, and why not follow him?"

O. C. "All our records are under Lælio-cattleya, and we must stick to them. We can't be sometimes right and sometimes wrong. Better be consistent, if it's always wrong."

B. "But why not alter your records, and be always right. It's no good clearing up mistakes if you persistently ignore them."

O. C. "That's just the point: Don't find them out. It's no good: you'll never get the name adopted, so you'd better drop it and done with it."

MAN IN THE HALL. "You see, their laws are the laws of the Medes and Persians." But he mentally noted that the name Brassocattleya had actually been adopted by the exhibitor before it was deliberately cancelled, and he left pondering.

CATTLEYA × MANTINII.

THE annexed figure shows a beautiful group of Cattleya × Mantinii from the collection of J. Bradshaw, Esq., The Grange, Old Southgate. The photograph showed fifteen plants, with an aggregate of twenty-four spikes, averaging six flowers each. Two or three plants, however, on the extreme

FIG. 36.—CATTLEYA × MANTINII GROWN IN LEAF-MOULD.

left, have been omitted in the illustration, because the photograph was rather long, and the flowers were not shown very distinctly, owing to a glare of light behind. Mr. Whitelegge states that this hybrid is a great favourite with Mr. Bradshaw, and considers it well worth growing in quantity, it being especially useful on account of its blooming at such a dull season of the year. The plants are grown in a mixture of peat, sphagnum moss, and

Belgian leaf-mould, from which the finer particles are sifted before mixing with the other ingredients. In this compost it is found that larger bulbs and finer heads of bloom are obtained, and as the plants have been in the compost named for two seasons they have been subjected to a fair trial. The history of this beautiful hybrid has already been given, and we need only add that it combines the characters of C. Bowringiana and C. Dowiana in the most effective manner, having all the free-growing character of the former. The illustration speaks for itself, and both Mr. Bradshaw and his able gardener must be congratulated on their success. The question of growing Orchids in leaf-mould has now come so prominently to the front that we are glad to be able to publish on another page a letter from Mr. Whitelegge as to his methods and experience with it.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on October 7th, when a fine display of Orchids was seen.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver-gilt Flora Medal for a very fine and representative group, containing Cypripedium purpuratum, C. Spicerianum, C. × tessellatum, C. × Memoria Moensii, C. × Wiganianum, C. × Thurgoodii, C. bellatulum album, Odontoglossum Uro-Skinneri, O. grande, O. Harryanum, O. × Andersonianum, and twenty-five fine plants of O. crispum; Dendrobium Victoria-Regina, Cirrhopetalum appendiculatum, Miltonia spectabilis Moreliana, Trichopilia nobilis, Oncidium Papilio, O. × Mantinii, some fine Lælia pumila, Cattleya labiata, C. × Mrs. J. W. Whiteley, C. × Hardyana, var. "Distinction," a very fine form, in which the lip bore a close resemblance to the Dowiana parent, and a pretty little hybrid of C. Aclandiæ, the other parent being doubtful. An Award of Merit was given to Lælio-cattleya × Isis Rosslyn variety (C. × Marstersoniæ × L. pumila), a perfectly-shaped flower most resembling the Lælia parent, with the colour bright rose, and some claret-crimson markings on the lip.

W. C. Walker, Esq., Winchmore Hill (gr. Mr. Cragg), received a Silver Flora Medal and a Cultural Commendation for a group of twenty-five finely grown and flowered Odontoglossum crispum. A note on their culture is given on another page.

Baron Sir H. Schrœder, The Dell, Egham (gr. Mr. Ballantine), received a First-class Certificate for Lælio-cattleya × Madame Chas. Maron (C. Warscewiczii × L. Digbyana), a very beautiful hybrid which is described and figured at page 329 of our last volume.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), exhibited

a pretty seedling Odontoglossum called O. × Hallio-crispum roseum, with a yellowish white ground colour, flushed with rose, and prettily blotched with reddish brown.

Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), showed an exceptionally fine specimen of Dendrobium formosum giganteum, having pseudobulbs two feet long, and fifteen enormous pure white flowers with an orange disc to the lip. It received a Cultural Commendation.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), showed Cypripedium Charlesworthii Westfield variety, a fine dark form, and a fine C. × Chas. Canham major.

Sir F. Wigan, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), exhibited Lælio-cattleya × Gottoiana, L.-c. × Ira (L. longipes × L.-c. × Schilleriana), and L.-c. × Constance Wigan (L. xanthina × C. Rex), the two latter being described on another page.

Messrs. J. Veitch & Sons, Chelsea, staged a fine group of hybrids, for which a Silver Flora Medal was awarded. It comprised Lælio-cattleya × Bryan, L.-c. × bletchleyensis, L.-c. × Aphrodite, L.-c. × Eunomia, L.-c. × Pacavia, L.-c. × Parysatis, L.-c. × Hermione, L.-c. × Nysa, L.-c. × Ophir, L.-c. × Tyro (L.-c. × Proserpine × C. Gaskelliana), having a very curious elongated lip veined with purple, Cattleya × Chloe, C. × Mrs. J. W. Whiteley, and other showy plants.

Messrs. Charlesworth & Co., Heaton, Bradford, received a Silver Banksian Medal for a fine group of hybrids, including Sophrocattleya × eximia, Lælio-cattleya × callistoglossa albens, L.-c. × La France (C. bicolor × L. tenebrosa), a fine form of Cattleya × Iris, C. × weedoniensis "Kubelik" (granulosa × Mendelii), a delicately-tinted form, the dark scarlet Sophrolælia × Veitchii var. Eros, and Cypripedium × Princess (Mons. Coffinet × Fairrieanum), a handsome hybrid, having a nearly white ground colour, tinged with rose, and lined with purple on the dorsal sepal and petals. A First-class Certificate was given to Sophrolælia × heatonensis (Sophronitis grandiflora × Lælia purpurata), a strikingly handsome hybrid, having the sepals and petals purple tinged with dark scarlet, and a large lip deep rose in colour, lined with purple.

Messrs. H. Low & Co., Bush Hill Park, staged a good group including Cattleya Grossii pallida, a nearly white form having the sepals slightly tinged with green, and the lip of a pale rose; some good C. Loddigesii, Lælio-cattleya × intermedio-flava, Oncidium Forbesii, O. incurvum album, Cypripedium insigne Balliæ and others. An Award of Merit was given to Cattleya × Firefly (Dormaniana × Bowringiana).

Messrs. W. Bull & Sons, Chelsea, showed the fine yellow Cypripedium × Charlesianum Sybil (Leeanum aureum × Sallieri), having the dorsal

sepal pure white on the upper part, and a few purple spots at the base.

Mr. H. A. Tracy, Twickenham, showed a dark form of Liparis tricallosa.

AT the meeting held on October 21st, there was a very fine display of Orchids.

J. Bradshaw, Esq., The Grange, Southgate, N. (gr. Mr. Whitelegge), received a Silver Flora Medal for a beautiful group, containing Cattleya × Mantinii nobilior, C. Loddigesii alba, some fine C. labiata, Oncidium tigrinum, O. Forbesii, Masdevallia Veitchiana, Odontoglossum grande, and some good O. crispum, including the fine O. c. Nestor. These Orchids were chiefly grown in leaf-mould, and a note on their culture appears on another page.

J. G. Fowler, Esq., Glebelands, South Woodford, Essex (gr. Mr. Davis), gained a Silver Banksian Medal for an excellent group, including Lælia × purpurato-Digbyana King Edward VII, Cattleya Dowiana aurea, a handsome form of C. Bowringiana called triumphans, C. × Mantinii, C. labiata, Lælio-cattleya × Haroldiana superba, having the sepals and petals bronze-yellow, somewhat marbled with rose, and a rich purple lip; Cypripedium × Captain Holford, a well-flowered example of Dendrobium aureum and others. A First-class Certificate was given to Lælio-cattleya × bletchleyensis Fowler's variety, with light-coloured sepals and petals veined with rose-purple, and the lip of a much darker tint.

W. C. Walker, Esq., Winchmore Hill (gr. Mr. Cragg), received a Silver Banksian Medal for a good group of Dendrobium Phalænopsis and Odontoglossum crispum.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), showed a fine plant of Odontoglossum × Wattianum, bearing a raceme of fourteen flowers, and a splendid example of O. × crispo-Harryanum delicatum. The latter, which was awarded a First-class Certificate, had white sepals and petals, slightly tinged with green towards the apex, and blotched with dark purple, and the lip broad and white, with some purple markings in front of the yellow crest.

The Rt. Hon. J. Chamberlain, M.P., Highbury, Birmingham (gr. Mr. Mackay), exhibited Brasso-cattleya × Mrs. Chamberlain (C. quadricolor × Brassavola Digbyana) a beautiful, delicately-coloured and fragrant flower, having white sepals and petals, slightly tinged with blush-pink, and the lip light blush-pink, with a light greenish yellow disc. The Committee altered the name to Lælio-cattleya × Mrs. Chamberlain, and gave it an Award of Merit.

Sir Trevor Lawrence, Bart., Burford, Dorking (gr. Mr. White), exhibited a fine plant of the East African Angræcum Kotschyi, which received a Cultural Commendation. It may be compared to A. Ellisii in general

habit, and bears long pendulous racemes of white flowers, with very long slender spurs, which are more or less spirally twisted in the apical half.

H. J. Elwes, Esq., F.R.S., Colesborne Park, Andoversford (gr. Mr. Walters), showed Stenoglottis longifolia Colesborne variety, a very fine form, bearing three dense racemes of blush-white flowers, prettily spotted with purple; and a finely-grown specimen of Habenaria carnea, with three fine spikes of flowers, the latter receiving a Cultural Commendation.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), received a Cultural Commendation for a fine plant of Cattleya × Maroni (aurea × velutina), bearing an inflorescence of nine finely-developed flowers.

N. C. Cookson, Esq., Oakwood, Wylam (gr. Mr. Chapman), exhibited Cypripedium × triumphans superbum, and Lælia præstans Oakwood variety, the latter having a nearly white ground colour with the front of the lip of a peculiar dark slate-blue colour.

A. Heygate, Esq., Milford-on-Sea, sent a small form of Cypripedium × Crossianum.

Messrs. J. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for a splendid group of hybrids, including Cypripedium × Baron Schröder, Lælia × splendens, Cattleya × porphyrophlebia, C. × Clonia, C. × Maroni, C. × Wendlandiana, C. × Mantinii, C. × Clytie, Lælio-cattleya × Hermione, L.-c. × Haroldiana, L.-c. × bletchleyensis Urania, L.-c. × Cornelia, and L.-c. × Eva (Gaskelliana × tenebrosa), having nearly white sepals and petals and some lilac-purple markings on the lip.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a large and handsome group, which gained a Silver Flora Medal. It contained Dendrobium × formoso-Lowii, Cypripedium × Standard (Charlesworthii × Leeanum giganteum), C. × Sir Redvers Buller, Cattleya × Mantinii, C. × Iris, C. × Chamberlainiana, C. × weedoniensis Kubelik (granulosa × Mendelii), C. × Bowringiano-superba, with dark rose-purple flowers; C. × Mrs. Herbert Greaves, evidently derived from C. Loddigesii and C. Gaskelliana; four handsome plants of C. × Mrs. J. W. Whiteley, one of the variety superba having a specially broad lip with a good deal of orange colour in it, Lælio-cattleya × præstans-bicolor, L.-c. × La France (tenebrosa × bicolor), L.-c. × Haroldiana, L.-c. × Gottoiana superba, Brassolælia × Helen, a plant of Oncidium Lanceanum with a panicle of twenty very fine flowers; O. ornithorrhynchum album, and Odontoglossum crispum Trianæ roseum.

Messrs. H. Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, containing the fine Cypripedium × I'Ansoni magnificum, C. × Marshallianum, Oncidium Forbesii, O. ornithorrhynchum, and O. o. album, some good varieties of Cattleya labiata, C. × Mantinii

nobilior, C. Dowiana aurea, the blush-white Lælia pumila Low's variety, and a beautifully-spotted form of Lycaste × hybrida called Low's variety.

Messrs. Sander & Sons, St. Albans, also received a Silver Banksian Medal for a fine group, containing Lælio-cattleya × mollis (Mossiæ × Boothiana), L.-c. × Gottoiana, L.-c. × Bowringiano-Clive, L.-c. × Cassiope, L.-c. × luminosa, L.-c. × Berthe Fournier, Lælia × Euterpe, varieties of L. pumila, Cattleya × Mantinii, C. × Maroni, two fine examples of Vanda cœrulea, Dendrobium Phalænopsis hololeucum, Cypripedium × Niobe, C. × Nellie (tonsum × Charlesworthii), C. × Transvaal (Chamberlainianum × Rothschildianum), fairly intermediate in character, and C. Charlesworthii virginale.

Mr. J. Douglas, Edenside, Great Bookham, showed Lælio-cattleya × Gottoiana Edenside var., a large and handsome form.

Mr. H. A. Tracy, Twickenham, exhibited Lælio-cattleya × Proserpine (L. Dayana × C. velutina).

Messrs. B. S. Williams & Son, Upper Holloway, showed Cypripedium × Goweri magnificum, and a very good example of Lælio-cattleya × Henry Greenwood.

Messrs. John Peed & Sons, West Norwood, staged a small group, containing a few good examples of Cattleya labiata, Cypripedium tonsum, C. × Leeanum, and a few others. A Vote of Thanks was accorded.

Manchester and North of England Orchid.

A meeting of this Society was held at the Coal Exchange, Manchester, on October 2nd, when a number of fine Orchids were shown.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received a First-class Certificate for Cattleya × Iris, a most beautiful hybrid, in which the characters of C. bicolor and C. Dowiana are combined.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a handsome group of Dendrobiums, hybrid Cypripedes, and well flowered plants of Cattleya Loddigesii, a Silver Medal being awarded.

T. Statter, Esq., Whitefield (gr. Mr. Johnson), received a Bronze Banksian Medal for a good group of Orchids, including a hybrid Cypripedium, said to have been derived from C. × Numa and C. Lawrenceanum.

C. Parker, Esq., Ashton-on-Ribble, received an Award of Merit for Cypripedium × purum (callosum × superbiens).

H. Shaw, Esq., West Kirby (gr. Mr. Cliffe), exhibited a good plant of Dendrobium Calceolaria, which gained an Award of Merit.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a selection of choice Orchids. Brassolælia × Veitchii (L. purpurata × Brassovola Digbyana) received a First-class Certificate, and Awards of Merit were given to Lælio-cattleya × Violetta (L. purpurata × C. × Gaskelliana),

L.-c. × Gottoiana, a home-raised example, and Cypripedium × Princess.

Mr. A. J. Keeling, Bingley, received an Award of Merit for Cypripedium × Graceæ (niveum × Boxallii).

The Stone Orchid Co. (gr. Mr. F. Stevens), received an Award of Merit for a good variety of Odontoglossum crispum.

At the meeting held on October 17th, a number of fine Orchids were again staged.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a fine group, which gained a Silver Medal. It contained the chaste Dendrobium Phalænopsis hololeucum, and some fine coloured forms, D. formosum giganteum, a fine form of Lælia Perrinii, L. pumila, the handsome Cattleya × Mantinii nobilior, and some good forms of C. labiata.

S. Gratrix, Esq., Whalley Range (gr. Mr. Cypher), received First-class Certificates for Cypripedium × Mary Amelia (× Lord Derby × bellatulum), and C. × Miss Balfour (× Chapmanii × William Lloyd), two handsome hybrids, and an Award of Merit for Dendrobium Phalænopsis rubescens, an exceptionally dark form.

T. Baxter, Esq., Morecambe (gr. Mr. Roberts), received a First-class Certificate for Odontoglossum crispum Poultoni, a handsome form spotted with pale lilac.

A. Warburton, Esq., Haslingden, received an Award of Merit for Cypripedium × microchilum, Vine House var., having the lip larger than usual.

Mr. J. Cypher, Cheltenham, staged a good group, containing some fine Dendrobiums, together with hybrid Cattleyas and Cypripediums, a Bronze Medal being awarded.

Mr. W. Holmes, Timperley, received an Award of Merit for a pretty hybrid Cymbidium (C. Mastersii ♀ × giganteum ♂), called C. × Holmesii, which must rank as a variety of C. × Mantinii.

Mr. W. B. Upjohn, Worsley, exhibited a well-grown plant of Cypripedium × conspicuum.

MAXILLARIA MACRURA.

It is interesting to be able to record the re-appearance of another Reichenbachian species which had been quite lost sight of. There is a fine Venezuelan Maxillaria in cultivation which was sent home by Bungeroth, and which, failing to identify with any known species, I described as M. longisepala (*Gard. Chron.*, 1890, viii, p. 94; *Lindenia*, vi, t. 248). A plant of it has just flowered at Glasnevin, together with one which Mr. F. W. Moore states was named for him by Reichenbach, many years ago, as

M. macrura ; and a comparison of the two leads him to think that they are forms of the same species. On searching the records, I find that M. macrura was described by Reichenbach in 1877 (*Linnæa*, xli, p. 28), from a plant which flowered in the Hamburg Botanic Garden. It is described as a native of Merida, where it was collected both by Moritz and Wagener. It is said to belong to the group of M. lepidota and M. longissima, and to have the sepals and petals brown, and very pellucid, and the lip yellowish white, with a few red-purple longitudinal stripes. The two evidently belong to the same species, and it is very satisfactory to be able to clear the matter up. The same plant has since been obtained by a collector of Messrs. F. Sander & Co., St. Albans, on the Sierra Nevada, at 8000 feet elevation above sea level.

R. A. ROLFE.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

ALL departments will now require warmth from the hot water pipes, and the aim must be to keep the temperatures as steady and regular as possible. For the proper winter temperatures a few degrees lower than those mentioned in last month's Calendar will suffice in very severe weather, otherwise those previously stated should be adhered to. It may also be pointed out how great is the advantage derived from using the lath blinds as a means of maintaining the proper degree of warmth without the necessity of using so much fire-heat. Where this can be done the conditions will be found more favourable to the plants, besides minimising the cost of fuel, &c.

THE RESTING OF ORCHIDS.—A few words on this important item will doubtless be found useful at the present time. In the first place it is safe to infer that all pseudobulbous Orchids require a rest at some period of the year, in order to bring about the maturity in their growths, and also that they may recuperate after flowering, so that they will thus be ready for another growing season. To do this properly requires as careful consideration and attention as does the growing period. Therefore when rest is implied it does not mean that absolute drought should be resorted to for long or short periods, but that the chief points to be remembered are little or no water, a lowering of the temperature, less moisture in the atmosphere, and last, but not least, more light where this can be obtained. It is easy to give either too much water or too little during the winter months, but very difficult to say when or how often to water, for the conditions of the weather and circumstances of each plant differ so much. The aim should be to give enough to keep the plant in plump condition ;

shrivelling of the pseudobulbs may be all right in some few cases, but excessive shrivelling must at all times be avoided. In varied and mixed collections it is often a difficult matter to give each individual plant an ideal position, but this may often be overcome by placing the various species by themselves, thus giving each section a position suitable for its requirements in the way of light and warmth.

In order to facilitate the wintering of Orchids we will divide them into three groups. Firstly, we will take the deciduous ones, amongst which will be found the following :—Thunias, Mormodes, Cycnoches, Catasetums, Chysis, Anguloas, Cyrtopodiums, Calanthes (deciduous) and many others, particularly those having large and succulent pseudobulbs. These are all more or less capable of withstanding drought from now onward until new growth appears at some time in the spring ; they may therefore occupy the driest and lightest positions in their respective compartments, and receive practically no water throughout the winter other than what is required to keep them from shrivelling to excess, and then only a slight surface watering is necessary. Never on any account saturate the whole compost. Secondly, may be included the other pseudobulbous species as, for instance, Cattleyas, Lælias, Odontoglossums, Cœlogynes, Oncidiums, Epidendrums, Lycastes, Maxillarias, Stanhopeas, &c. These will not withstand so much drought as the former kinds, but should be given a fairly dry treatment. Thirdly, we have those species which are growing more or less all the year, and have no marked season of inactivity ; some of these have pseudobulbs, such as Zygopetalums, Miltonias, Cymbidiums, Cochliodas, and various species from other genera, such as Lælia purpurata, Odontoglossum crispum, &c., together with a great number of those having no pseudo-bulbs, such as Cypripediums, Saccolabiums, Vandas, Sobralias, Phalænopsis, Phaiuses, Masdevallias, Angræcums, and Aërides. These should not be allowed to become too dry at the root, but, on the other hand, should not be too freely watered—just enough to keep them plump and in a healthy condition is needed throughout the winter, and for this very little will suffice.

The knowledge of giving water at the right time to any particular plant, in order to keep it healthy and in a sound condition, is only acquired by practical experience ; also the application of the same is important. Some require to be partially submerged, others completely so. Some should have the surface slightly moistened, and some the base of receptacle dipped only. Thus it is no easy task to lay down any strict rule except for general guidance.

HOUSE CLEANING.—We have approached the time of year when light is essential to aid the maturing of Orchids, and so that this may be carried out, all glass, inside and out, should now be washed. The stages and all

other woodwork should be cleaned thoroughly, not forgetting the pots and plants themselves. When rearranging the plants give each a suitable position in accordance with the aforesaid remarks, not forgetting the requirements of those plants still in active growth, giving them as favourable a position as possible.

Pleione lagenaria and P. maculata as they pass out of flower should be re-panned in fresh compost, kept moist, and given a position in the Intermediate house near the glass, where they will start gently to grow. It is not really necessary to repot annually if the compost appears to be in a satisfactory state of preservation, then a fresh top dressing will be amply sufficient.

Dendrobium Phalænopsis, D. P. Statterianum and D. bigibbum as they pass out of flower will require but little water until growth recommences in the spring. Place them in the lightest position available in the Warm house. D. formosum giganteum will also need less water, and the supply may be gradually decreased, giving practically none during the winter, and they should be given slightly cooler quarters than the former.

Cattleya labiata and C. Bowringiana are now in their beauty, and they are invaluable for this time of year. After blooming a moderate rest is essential, with no root disturbance for repotting purposes until early spring. These remarks will apply also to the beautiful C. Dowiana, now blooming. Avoid keeping these autumn-flowering Cattleyas in a damp position after blooming, or this may often affect them, and the newly-formed pseudobulb and leaf be lost. Remove the old flower sheath so that no moisture may lodge therein. Neglect of this detail may often lead to decay and ultimate disaster.

Maxillaria grandiflora and M. venusta are now sending up their flowers. They are lovely old species, and when grown well produce a large quantity of flowers, which last in perfection for a long time. A position in the Intermediate house suits them well, providing they are not unduly disturbed at the roots.

Cypripediums.—A large quantity of showy species and hybrids are now in flower, and these go to make a striking show by themselves; far more so than when staged with other showy Orchids, such as Cattleyas, &c. The majority of them are easily cultivated, many preferring intermediate temperature, whilst others prefer a position in the Warmest house. A suitable time to pot them is after flowering, and I know nothing better than leaf soil for a compost, using about an inch of crocks for drainage, and giving a good surface of sphagnum moss—about half an inch. Thrip is one of the worst pests to contend with, but may easily be kept within bounds with watchfulness and a careful application with XL All fumigators.

CHONDROBOLLEA × FRŒBELIANA.

In June, 1901, a flower of a very curious Orchid was sent to Kew for determination, through Mr. J. O'Brien, by M. Otto Frœbel, of Zurich, with the suggestion that it might be a natural hybrid between Bollea cœlestis and Chondrorhyncha Chestertoni. It had been produced by a plant introduced by Mr. F. C. Lehmann, in the summer of 1898, with other examples of the last-named Orchid, but had not previously bloomed. The flower had the crest of the lip as in Bollea cœlestis, but the column only half as broad, and the segments much narrower and quite different in colour, being yellowish white, tinged with lilac-purple; the front of the lip purple, the crest yellow with about thirteen to fifteen keels; and the column lilac, with a yellow area at the base spotted with brown. There was no trace of the remarkable fringed lip of the Chondrorhyncha, and I at first suggested that it seemed intermediate between Bollea and some species of Warscewiczella, and asked what other plants came home in the same importation. A week later M. Frœbel sent a second flower, much darker in colour, and remarked:—"The plant looks like Chondrorhyncha; the leaves are similar, and I was exceedingly astonished at seeing a flower which I had never seen before. I do not know if other plants will prove the same, but many of the plants introduced in 1898 have not yet flowered; for instance many introduced plants of Bollea cœlestis." Further comparison seemed to confirm the suggestion that it was a hybrid between the species of Bollea and Chondrorhyncha named, for the much attenuated sepals and petals were more like the latter than Warscewiczella, and other characters were in agreement with what was known of the history of the plant. There remained a slight doubt, however, and the above name was not placed on record, in the hope that further materials would clear the matter up.

A year later Mr. J. O'Brien drew attention to the plant (*Gard. Chron.*, 1902, xxxii, p. 150), as follows:—"A very singular supposed natural hybrid between Bollea cœlestis and Chondrorhyncha Chestertoni, a totally different species with yellow flowers and fringed labellum. The hybrid seems to show traces of both the reputed parents, and is intermediate in colour, its livid blue showing traces of yellow in parts." M. Cogniaux now describes it under the name of Bolleo-Chondrorhyncha × Frœbeliana (*Gard. Chron.*, 1902, xxxii, p. 243; *Chron. Orch.*, p. 363).

With the preceding, M. Frœbel sent another singular plant, which he suggested might be a natural hybrid between Bollea cœlestis and Pescatorea Klabochorum. A plant with this parentage has already appeared, and was named Pescatorea × bella by Reichenbach, though the name PESCATOBOLLEA × BELLA, now proposed for it, is more in consonance with its

origin. Its history was given at pp. 45, 68 of our eighth volume. That, however, has broad obtuse sepals and petals, while in the plant from M. Frœbel these organs are strongly acuminate, and I have a suspicion that it may be another form of the hybrid above named. The sepals and petals are twice as broad as in that, and the colour dark violet-purple—in fact while the former might be roughly described as three-fourths Chondrorhyncha in shape, and nearly as much in colour, the latter might be called three-fourths Bollea in both characters. If both are forms of the same hybrid other individuals may be expected to appear which are more nearly intermediate in character. The point cannot be settled without further materials, but it is certain that we have an interesting case under consideration.

R. A. ROLFE.

CULTURE OF ODONTOGLOSSUM CRISPUM.

AT the R.H.S. meeting held on October 7th, a Silver Flora Medal and a Cultural Commendation was given to W. C. Walker, Esq., Winchmore Hill (gr. Mr. Cragg), for a group of twenty-five finely-grown examples of Odontoglossum crispum, the bulbs, leaves, and flower-spikes all being in excellent condition. The method of culture adopted by Mr. Cragg is as follows:—A single crock is placed at the bottom of the pot, and above this is placed bracken rhizomes from the peat until the pot is one-third full. The plant is then placed in the pot, and loosely packed in with rough peat, above which is placed a layer of sphagnum moss from one to two inches deep. In other respects the usual treatment is given.

ORCHIDS IN SEASON.

A MAGNIFICENT form of Lælio-cattleya × bletchleyensis is sent by M. Ch. Vuylsteke, Loochristi, Ghent, being excellent in shape, very rich in colour, and the petals attaining a length of over 4 inches by 2¼ inches broad. It is a noble example of what must be considered the finest of the Lælia tenebrosa hybrids. The richness of colour is no doubt largely due to the influence of Cattleya Warscewiczii, the other parent.

A superb form of Cattleya × Fabia (labiata × Dowiana) is also sent from the same collection, having mauve-purple sepals and petals, and a rich crimson-purple lip, with a large amount of the golden veining of C. Dowiana in the throat.

A very fine form of Lælio-cattleya × Hermione is sent from the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, by Mr. Young. It combines the characters of Lælia Perrinii and Cattleya Lueddemanniana in a very effective way, and the ample petals of the latter

have had a marked influence on the corresponding organs of the hybrid. Their colour is bright rose-purple, and the lip whitish with a very deep purple apex.

Another very fine Lælio-cattleya is sent from the same collection, which has the record of being derived from Lælio-cattleya × Gottoiana and Lælia tenebrosa, but Mr. Young remarks that he sees no evidence of the double influence of the latter. Nor do we. Indeed the increased breadth of the segments, the shape of the pollinia, and the presence of a pair of light yellow eye-like blotches in the throat, suggest a cross between the first-named and Cattleya Warscewiczii. We hope to see the matter cleared up.

A flower of the handsome Paphiopedilum × Mabeliæ var. Corona, to which a First-class Certificate was awarded by the Manchester Orchid Society on September 11th, is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. It is indeed a superb form, in which the characters of P. superbiens and P. Rothschildianum are combined in the most effective way. The handsomely spotted petals measure an inch across at the broadest part.

A two-flowered infloresence of another fine Paphiopedilum is also sent from the same collection. It is said to be an unnamed seedling, and, unless it is another form of P. × Mabeliæ, we think it may be a form of the one known as A. de Lairesse (P. Curtisii × Rothschildianum). It chiefly differs from the preceding in having the dorsal sepal rather more closely lined, and the petals rather narrower, more closely undulate, and the spots smaller and more numerous. The hybrids of this group are very beautiful.

A third flower sent is Paphiopedilum × triumphans, in which the characters of P. × nitens Hyeanum and P. × œnanthum superbum are combined. It is one of the best of its group, being excellent in form, very richly coloured, and of good constitution.

An interesting and beautiful series showing the Orchids in flower at the present season is sent from the collection of E. J. Lovell, Esq., Oakhurst, Oxted, Surrey, by Mr. Jones. They include examples of Cattleya Bowringiana, C. Loddigesii, a good C. Dowiana chrysotoxa having the lip regularly veined throughout with deep buff yellow and purple, and the sepals and petals light yellow throughout with only a trace of purple marbling, the fine old Oncidium tigrinum, a graceful inflorescence of O. flexuosum with numerous yellow flowers, a good O. Forbesii, and a far larger example of O. Forbesii superbum, the fine old Zygopetalum intermedium, Odontoglossum crispum, a good dark Paphiopedilum × Allanianum, said to be the reverse cross of the original form, P. × polystigmaticum, and the distinct little P. venustum, the whole forming a very pretty little group.

Two beautiful flowers of Dendrobium Phalænopsis are sent from the collection of Lord Pirbright, Henley Park, Guildford, by Mr. Repton. The first is a large, light-coloured, but otherwise fairly typical form, with the petals over 1½ inches broad, and the other, called variety Pearl, is rather smaller, and blush white, with light purple veining on the disc and side lobes of the lip. It is a very charming variety, and the plant is said to be small and weak at present.

A richly-coloured form of Cymbidium giganteum is sent by M. Fl. Claes, Etterbeek, Brussels.

An inflorescence of the charming Dendrobium Phalænopsis hololeucum is sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. It is a true albino, being pure white throughout, with only a tinge of pale sulphur on the disc. One inflorescence produced by the plant had nine flowers. Inflorescences of D. formosum and D. f. giganteum are also sent, the latter being a massive form with petals two inches broad. This is now flowering for the fifth consecutive year in the collection, and the species is said to have been again very fine this season.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, during November, on the 4th and 18th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold a meeting on Thursday, November 6th. The Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

The September number of Messrs Cogniaux and Goossens' *Dictionnaire Iconographique des Orchidées* contains figures of Cœlogyne lactea, Cypripedium Ashburtoniæ var. Bartetii, Dendrobium Jerdonianum, Epidendrum arachnoglossum var. candidum, E. Endresii, Lælio-cattleya × highburiensis var. Fournieri, L.-c × Truffautiana, L.-c. × Lucasiana, Maxillaria venusta, Miltonia Endresii, Ornithidium densum, O. fragrans, and Restrepia antennifera. The last-named, however, though usually cultivated under this name, is now known to be different from Kunth's original R. antennifera, and should bear the name of R. maculata, Lindl.

Accompanying this part is a list of the species, varieties, and hybrids which have been figured in the first five series of the work, "in the order in which they should be arranged." This list is partly in alphabetical and

partly in numerical sequence, and the numbers which were used for the species are repeated again for the hybrids, making the arrangement rather complex. For convenience of reference we prefer an alphabetical arrangement, and those who have adopted this system may possibly think it better to retain it.

A remarkable twin flower of Odontoglossum grande is sent from the collection of Thos. D. Syers, Esq., Holmleigh, Huyton, near Liverpool. The fusion is less complete than usual, the columns and lips being quite distinct, though the latter are somewhat displaced. There are also four normal petals and two dorsal sepals, but the lateral sepals are disorganized, there being three instead of four. It occurs at the apex of the spike, and the two other flowers are normal. It is a good, brightly-coloured form, and was purchased about a year ago.

The hybrid described at page 317 as Lælio-cattleya × Ascania should have been called Hon. Mrs. Astor (Gaskelliana × xanthina). L.-c. × Ascania was derived from L. xanthina × C. Trianæ. The mistake arose through a slip of the memory.

CYMBIDIUM × GAMMIEANUM.

It is interesting to note that another plant of Cymbidium × Gammieanum has appeared. A few Cymbidiums were obtained for the Kew collection from Dr. Martin, of Ealing, who it is believed had obtained them from a relative in Sikkim. Two on flowering proved to be C. longifolium, but a third, supposed to be C. elegans, proves to be the above named natural hybrid. It is most like C. elegans in habit, but the inflorescence is more lax, and bears twenty-one flowers, which are rather larger, the segments rather more spreading, and the lip prettily spotted with brown, C. longifolium is the other parent. The history of this interesting natural hybrid has already been given (vol. viii, p. 107). R. A. ROLFE.

ORCHID PORTRAITS.

CATTLEYA × IRIS.—*Gard. Mag.*, 1902, 639, 651, with fig.

C. MENDELII (in leaf-mould).—*Garden*, 1902, lxii, p. 289, with fig.

CYPRIPEDIUM × MRS. F. HARDY.—*Journ. Hort.*, 1902, xlv, p. 305, with fig.

CYRTOPODIUM PUNCTATUM, Lindl.—*Gartenflora*, 1902, pp. 505-507, t. 1503, fig. 107, 108.

EPIDENDRUM × CUCO.—*Amer. Gard.*, xxiii, p. 670, fig. 138.

LÆLIA GRANDIS VAR. TENEBROSA SUBVAR. RAYON D'OR.—*Lindenia*, t. 790. SUBVAR. SUPERBIENS.—*Lindenia*, t. 786. These are forms of Lælia tenebrosa, a species quite distinct from L. grandis.

LÆLIO-CATTLEYA × ADOLPHUS SUPERBA.—*Gard. Mag.*, 1902, p. 666, with fig.

L.-C. × COOKSONIÆ.—*Journ. Hort.*, 1902, xlv, p. 375, with fig.

MASDEVALLIA SCHRŒDERIANA, Sander.—*Bot. Mag.*, t. 7859.

MAXILLARIA SCURRILIS.—*Gard. Chron.*, 1902, xxxii, pp. 243, 245, fig. 82, 83.

ODONTOGLOSSUM × ADRIANÆ VAR. TIGRINUM.—*Lindenia*, t. 791.

O. CRISPUM VAR. LUCIANI.—*Garden*, 1902, lxii, p. 253, with fig. VAR. PRESIDENT ROOSEVELT.—*Lindenia*, t. 787. VAR. PRINCE ALBERT.—*Lindenia*, t. 789. VAR. REINE EMMA.—*Lindenia*, t. 785.

O. × LOOCHRISTIENSE VAR. ETOILE DE MOORTEBEEK.—*Lindenia*, t. 792.

O. × WILCKEANUM VAR. ROTHSCHILDIANUM.—*Journ. Hort.*, 1902, xlv, p. 351, with fig.

PHALÆNOPSIS AMABILIS VAR. RIMESTADTIANA.—*Gard. Chron.*, 1902, xxxii, p. 306, with Suppl. fig.

SOPHROLÆLIA × HEATONENSIS.—*Gard. Mag.*, 1902, pp. 694, 698, with fig; *Journ. Hort.*, 1902, xlv, p. 397, with fig.

TRICHOPILIA SUAVIS VAR. CANDIDA.—*Lindenia*, t. 788.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

W.H. Odontoglossum gloriosum; a small dark form. Cymbidium × Mantinii next month.

F.C. Cymbidium giganteum.

Photographs received, with thanks. F.C., G.I'A., W.H., G.G.W.

In answer to enquiries respecting a Frontispiece to the present volume, we may say that a selection will be made from the subjects received not later than the middle of the month.

Received. G.O., R.Y., E.F.C., J.R.

Some important evidence respecting the culture of Orchids in leaf-mould, and a few other matters, are unavoidably held over till next month.

We have received from Mr. A. Maples, Endcliffe Edge, Sheffield, a fine sample of Orchid Peat. It is excellent in quality, consisting of brown fibre intermixed with old bracken rhizomes, and is suitable either for using in the ordinary way, or for mixing with Oak-leaves to form the new compost which is proving so successful. Particulars are given in an Advertisement.

It will also be seen that Mr. Whiffen, late gardener to J. Bradshaw, Esq., is seeking an engagement.

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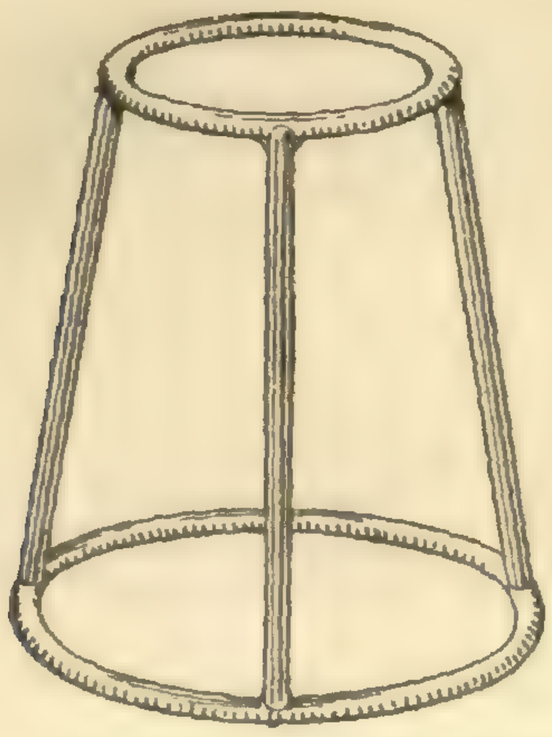

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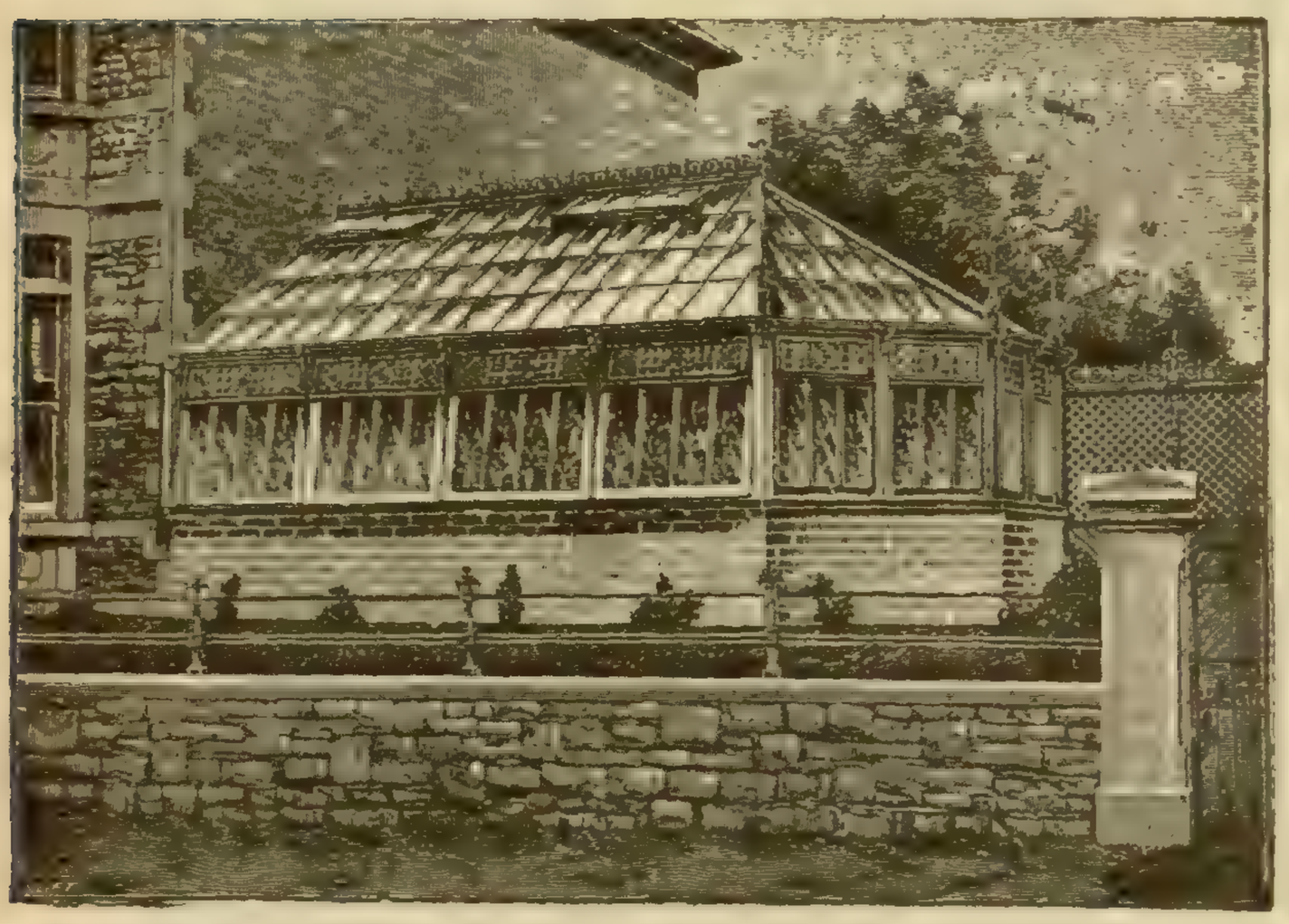

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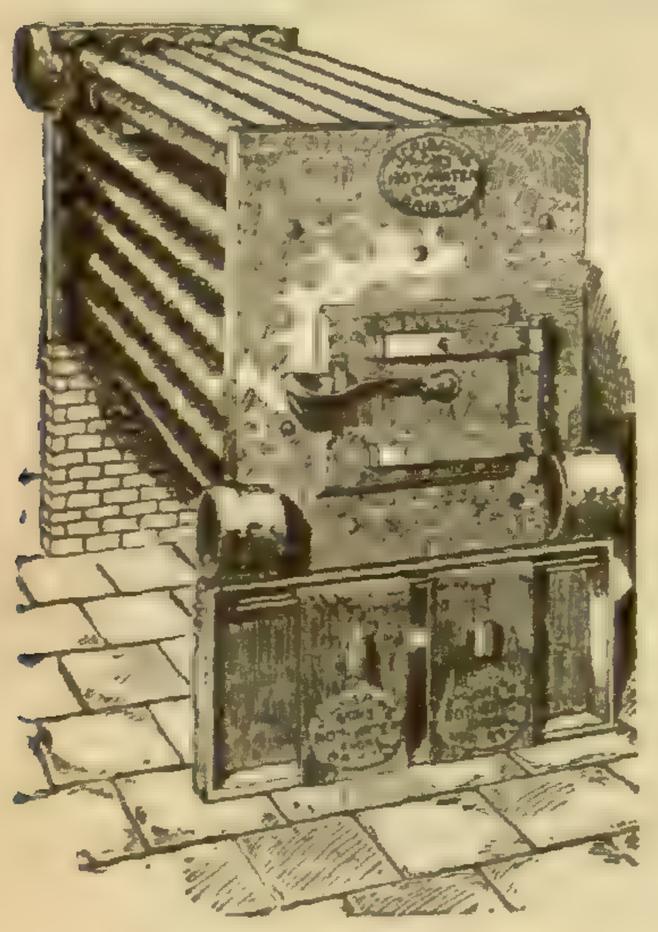

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THE ORCHID REVIEW:

An Illustrated Monthly Journal,

DEVOTED TO ORCHIDOLOGY.

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THE ORCHID REVIEW.

VOL. X.] *DECEMBER*, 1902. [No. 120.

DIES ORCHIDIANI.

IT is interesting to find such a concensus of opinion respecting the value of leaf-mould as a compost for Orchids as is given at pages 331 to 334. The matter seems to be passing out of the experimental stage, and the full details given as to the proper way of preparing and mixing the materials will probably induce other growers to give the system a trial, and thus familiarise themselves with it. The beautiful group of Cattleya × Mantinii grown in the new compost, as illustrated at page 337, is also very instructive. It now seems probable that some cases of failure have not been so much due to the materials themselves as to the methods of using them, for those who have paid proper attention to the mechanical condition of the compost have not been troubled with "wet feet," which seems to be one of the chief difficulties encountered.

I see it is suggested that the term "leaf-mould" is misleading, as some growers who have not paid sufficient attention to details have used the material in a completely decayed condition. But the term "Oak-leaves" would be equally misleading if taken literally, as one might pot his plants in perfectly new Oak-leaves, and expect to get correct results. The advice not to give Orchids "soggy" potting materials is sound enough, but the instructions given over a year ago were to use Oak-leaves in a flaky or half-decayed condition, and after being rubbed through a coarse sieve, the fine materials were to be sifted out, and then some fibrous peat and chopped sphagnum moss added to keep the compost open (*O. R.*, ix., p. 301). Such a compost is not likely to get "soggy" with ordinary care in watering.

This latter point seems to furnish one of the chief difficulties with the new compost, and the advice given seems to be a little contradictory. The majority of growers recommend that less water should be applied, but Mr. Harrison finds that "they want more water than when in peat and moss" (page 333), and asserts that "leaves do not get sour nearly so soon." But even he at first tried "thoroughly decayed leaves, which

formed a fine soil, became sodden, and the plants failed to thrive." The lesson seems to be that the compost should be of the right mechanical composition, and the drainage perfect, and then water can be supplied in the usual way—that is, when the plants require it; not indiscriminately, or with a hose, whether they require it or not, as the American system was described a short time ago. No wonder the material becomes "soggy" under such conditions.

The question of the best compost is not yet settled, however, for I see at page 348 that Mr. Cragg swears by bracken rhizomes and rough peat, with a surfacing of sphagnum moss, and that he secured a Cultural Commendation for a group of twenty-five Odontoglossum crispums at a recent meeting of the R.H.S. I also note in a recent account of the "Orchids at Walton Grange" (*Gard. Chron.*, p. 318) that the writer remarks:—"In the matter of potting material for Orchids Mr. Stevens is of opinion that the old plan of using peat and sphagnum is as good as any, and more than one house of Odontoglossums in excellent condition is so potted. As an extreme use of peat, there is a very fine example of high cultivation in a small house of Odontoglossum Pescatorei, with remarkably fine bulbs, and which are potted entirely in the earthy peat generally used for Rhododendron beds." After this one may ask, What's in a compost? and why trouble about best fibrous peat when such results can be obtained with the common or garden variety?

But even here the new compost is not ignored, for the writer hastens to explain:—"Nevertheless, Mr. Stevens gets good results with his plants potted in a mixture of peat and Oak-leaves, and for some things the Oak-leaves are used almost unmixed, and with good results, as, for example, in the matter of a shelf full of good plants of Sophronitis grandiflora, finely grown and well-bloomed; and a lot of Miltonia vexillaria, M. × Bleuana, and others of that class, for which a large proportion of leaves is used with marked benefit."

Now the quality of the Walton Grange Odontoglossums is well known, and I suspect that the secret of Mr. Stevens' success lies in his complete mastery of all the cultural details, for it is quite evident that the question of compost is only one of several details which must receive proper attention in order to get the best results. It is, however, none the less interesting to find that the question of compost is being grappled with in this way, for it may lead to more definite information as to the requirements of these plants, and a better idea as to the common causes of failure.

For years it was a standing reproach against Orchid growers that they could not raise Odontoglossums from seed, although they could keep imported plants alive and continue to flower them. Various reasons were given to explain the fact, but the probable cause is that the proper conditions were not understood. At all events substantial progress has been made during recent years, and it would appear that the seedlings are easy enough to raise when one knows how to set about it. Mr. Stevens is said to have about six hundred nice little plants in various stages, chiefly from two to four inches high. Some germinated on pots of the parent plants, others in pans of prepared peat, and a yet greater number on calico, the surface of which is rendered convex by a pad of sphagnum moss, the whole fitting about an inch below the rim on the inside of the flower pot. They are said to be kept moist by frequent spraying. It is exceedingly interesting to find that Mr. Stevens has surmounted the difficulties, and I hope that their flowering will prove equally satisfactory.

Some time ago there was a discussion on the subject of changing the names of Certificated Orchids, and I alluded to the difficulty which is sometimes experienced in ascertaining what those names really are ; instancing the case of Cattleya amethystoglossa Sanderæ, which, according to two of the horticultural papers, received a First-class Certificate from the R.H.S. last March, though two other papers called it C. guttata Prinzii var. Sanderæ. And I added (p. 130) :—"I shall be curious to see what the Society's own official record says." Now we have it, for in the last issue of the R.H.S. *Journal* we read :—"Cattleya guttata Prinzii Sanderæ (votes unanimous) from Messrs. Sander, St. Albans. An albino of the species more commonly known as C. amethystoglossa." Perhaps what your correspondent "overheard at the Drill Hall" is applicable to this case too.

ARGUS.

SEEDLING ODONTOGLOSSUMS.

A SHORT note respecting a fine batch of seedling Odontoglossums in the collection of W. Thompson, Esq., Walton Grange, Stone, was given at page 255, showing that considerable progress has been made since we had the pleasure of seeing and reporting on the progress made by Mr. Stevens with this beautiful genus (*O.R.*, viii, pp. 198, 199). An interesting article on the collection has just appeared in the *Gardeners' Chronicle* (1902, xxxii, p. 318), from which the following is extracted :—

"A span-house is set apart for fine varieties of Odontoglossums for the purpose of hybridising, and a goodly number of seed-capsules are maturing.

Good results have already been attained in crossing and raising Odontoglossums, some of the resultants having now nearly attained flowering size, while in various stages, chiefly in plants two to four inches in height, are some six hundred nice little plants of hybrid Odontoglossums, whose records suggest that they should turn out well. Among the crosses are O. Uro-Skinneri × O. Harryanum, O. crispum × O. Vuylstekeanum, O. crispum × O. cordatum, and others, in which the fine O. × Wilckeanum Stevensii has been used on various species.

"The seedlings are raised in several ways, and seemingly with equal facility. Some are coming up on the pots of the parent plants, others in pans of prepared peat, and a yet greater number on calico, the surface of which is rendered convex by a pad of sphagnum moss, the whole fitting about an inch below the rim on the inside of the flower-pot. Spraying as a means of keeping them moist is frequently done, and the sprayer is much in use on all classes of Orchids."

A further note refers to "a promising cross between a fine Miltonia vexillaria and M. vexillaria Leopoldi, which should produce a new form of M. × Bleuana," but it seems probable that "M. vexillaria" should read "M. Roezlii," that species being one parent of the original M. × Bleuana. It is extremely satisfactory to find that such substantial progress is being made with this beautiful group of Orchids.

ORCHIDS FROM WESTONBIRT.

A remarkable series of flowers sent from the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander, shows the great value of the genus Paphiopedilum for autumn and winter flowering. P. insigne is represented by thirty-two different forms, including both the yellow and spotted varieties. The former are P. i. Sanderæ, Sanderianum, Luciani, lucidum, Ethel, Dorothy, and citrinum, no two being alike. Of the spotted forms may be mentioned Harefield Hall variety, the giant of the series, Holfordianum, smaller and less spotted, but otherwise approaching it, Dormanii, punctato-violaceum, marginatum, and magnificum. There are several other named forms, and those without varietal names show much variation in the shape of the dorsal sepal, and the size and number of the spots. One large and striking form has the spots small and more or less confluent, being almost reduced to a brown suffusion towards the base. P. × Leeanum is represented by twelve very fine forms, the more distinct being giganteum, Albertianum, superbum, and magnificum. Here also is seen a large amount of variation in the amount of spotting on the dorsal sepal. The remaining forms are P. Spicerianum, P. Charlesworthii magnificum, P. × Buchanianum, P. × Arthurianum, P. × Niobe magnificum, P. ×

Calypso, P. × memoria Moensii, P. × Lawrebel, P. × Hera var. Euryades, P. × Cyris and P. × Sir Redvers Buller, two handsomely spotted forms, P. × Mrs. Tautz, P. × Milo Westonbirt variety, and P. × Ashburtonæ Bartetii. They form an extremely beautiful series, and all the flowers are large and splendidly developed, showing excellent culture. They are cut from plants forming the remarkable group exhibited at the Drill Hall on November 18th, to which a large Gold Medal was awarded.

MILTONIA VEXILLARIA EMPRESS AUGUSTA VICTORIA.

See FRONTISPIECE.

THE Frontispiece to the present volume represents a most beautiful example of the above-named variety, grown in the collection of Captain Holford, Westonbirt, Tetbury, by Mr. Alexander. It is in a five-inch pot, in Belgian leaf-mould, and last May produced seven racemes of bloom, as shown. The method of treatment was given at pages 201 and 202, and the results speak for themselves. The photograph was taken by Mr. Lamb, of Tetbury.

ORCHIDS AT CLARE LAWN.

THE question of growing Orchids in leaf-mould—or perhaps it would be more correct to say in a compost consisting largely of decaying Oak-leaves—has been much discussed of late, and knowing that Mr. W. H. Young, Sir Frederick Wigan's able Orchid grower, had for some time been experimenting with the new compost, we thought it would be interesting to see the results, and hear what Mr. Young might have to say upon the matter. Accordingly, about the end of October, we called at Clare Lawn, and now have the pleasure of giving a few notes upon the subject.

Mr. Young's experience is quite typical. When he heard of the new compost he determined to try it, though without feeling very sanguine as to the results. He accordingly potted a few plants in it, following the instructions about careful watering, and as there were soon signs of improvement, he tried a few others, with the same results. This induced him to extend the experiments, until at the present time he has plants of all the principal groups in the new compost. The two systems are being tried side by side, those in the new compost being distinguished by a short stick painted dark brown inserted into the pots. This affords a guide as to watering, but otherwise the plants are treated exactly alike. The improvement in some cases is remarkable, as will be seen presently, and Mr. Young, who is no novice in Orchid growing, expressed his opinion that it is the

coming method, but he emphasises the necessity of additional care in watering.

Odontoglossums thrive and multiply in a way that they failed to do before, and Mr. Young pointed out examples, and also turned some out of the pots to show that the root action was satisfactory. It should be remarked that many of them have been in leaf-mould for two years. O. crispum and allied species were in thriving condition, while O. × Rolfeæ and O. × spectabile were growing with remarkable vigour, the latter carrying a raceme of 11 buds, while the latest pseudobulb was over five inches long. A sturdy plant of Cochlioda Noetzliana had thirteen new bulbs, against eleven last year, and only seven the year before. Oncidiums also grow with increased vigour, and the same might be said of many other inmates of the Cool department, which Mr. Young considers has greatly benefited by the introduction of the new compost. Here were two good pans of Pleione lagenaria, one with, the other without leaves, in the compost, and, although the difference was less marked than in some cases, yet the latter was second best. Here we noticed some good examples of Lælia pumila and Dayana in flower, also Cochlioda vulcanica, Trichosma suavis, Masdevallia × Hincksiana, varying from cream-white to buff-yellow, according to the age of the flowers, M. Carderi, Oncidiums Forbesii, incurvum, ornithorrhynchum, and other interesting things. Cymbidium grandiflorum was throwing up five spikes, and several of C. Tracyanum were beginning to push.

The Phalænopsis house at Clare Lawn is always interesting, and here the new compost is being tried. A plant of Phalænopsis Schilleriana imported last May was put straight into the new compost, and has since developed some remarkably fine leaves. But still more interesting was an old plant which was put into the new compost last April. Since then it has developed two leaves, the best measuring a foot long by a shade under four inches broad, and the other only slightly smaller, and not yet mature. There was no imported vigour behind this plant, for it has been in the collection ever since 1888. The plants here are generally good, and are producing numbers of fine spikes. Several P. violacea were in bloom, and Mr. Young pointed out that the flowers of this species are very fragrant. Pescatorea Klabochorum and P. cerina were in flower, having been in the collection twelve and thirteen years respectively. Chondrorhyncha Chestertoni had three buds, and Mr. Young has a nice batch of species of this group (including Bollea, Warscewiczella, &c.), which grow almost like weeds in leaf-mould, and they keep on flowering almost continually. The new Zygonisia × Rolfeana was throwing up a fine spike, and the curious little Saccolabium calceolare was bearing three heads of flowers. The Cypripedium group and Miltonia Roezlii also thrive well in

leaf-mould, although Mr. Young remarked that they do not root into it much. But they are surface-rooting plants, and the luxuriant foliage shows that they get the food they require, probably in great part from the gradual decay of the leaves.

Cymbidium Lowianum and the cool growing Cypripedes do remarkably well in the Rock house, and here Odontoglossum coronarium was showing for flower, and we noted two plants of the natural hybrid Cymbidium × I'Ansoni, which it is believed are the only ones in the country. Mr. Young pointed out a plant of Oncidium insculptum, which last winter produced one of its remarkable rambling spikes, which was trained to the roof, and during a spell of sharp weather some of the flowers were encased in masses of ice, but, curiously enough, when the thaw came these flowers had apparently not suffered the least for their novel experience.

In the Cattleya houses we observed many plants growing remarkably well in the new compost, C. Mossiæ and Mendelii being specially pointed out. Here we observed some good C. Bowringiana and the pretty lilac-coloured variety Lady Wigan, C. labiata alba and various coloured forms in bud, Lælio-cattleya × Frederick Boyle and L.-c. × Liptoni throwing up spikes, the former closely resembling the Lælia anceps parent in habit. Both the white and coloured forms of L. anceps were showing plenty of spikes, and it was pointed out in several cases that the spike was being developed on bulbs that had failed to produce a leaf. This was mostly among the white forms, and it is a new experience to Mr. Young, who cannot suggest a cause for the peculiarity. Sophrolælia × Eros was bearing two fine flowers of the most intense blood-crimson, and a plant of Scuticaria Hadwenii carried four flowers. There were also pans of the charming little Pleione maculata, two plants of the beautiful Cypripedium insigne Sanderæ, and several good forms of C. × Leeanum, C. Spicerianum, &c. Some plants of C. bellatulum that had been in leaf-mould for two years were pointed out, and they were in the most robust health, also two of the variety album, one of which was in flower. C. × Godefroyæ leucochilum was equally robust, and no better results could be desired.

Some good Dendrobium Phalænopsis and D. formosum were in flower, and it was interesting to see a batch of about ten seedlings of the latter, which were found on some imported plants and potted up separately. Cattleya superba carried an inflorescence of three buds, one of four flowers being over; the remarkable Paphinia cristata was also just past. Some seedling Spathoglottis (Vieillardii ♀ × Kimballiana) were in flower. the character of the seed parent largely predominating. And a plant of the richly-coloured Phragmipedilum × Perseus carried a strong panicle with five expanded flowers and several buds.

In another house we noted some good forms of Cypripedium insigne, including the Harefield Hall variety, the latter not yet open, also C. × Niobe, C. × Arthurianum, and its distinct variety pulchellum, with the rare Cœlogyne Veitchiana, and some others.

The visit proved most interesting, and Mr. Young must be congratulated on his success with the new treatment. Success it certainly is, for the results speak for themselves, and the method has been in use long enough to show what it is capable of. Mr. Young naturally intends to develop it further, and we shall watch the experiment with interest.

PAPHIOPEDILUM CHARLESWORTHII AND P. SPICERIANUM.

At the R.H.S. meeting held on October 21st a plant was exhibited by Messrs. Sander & Sons, under the name of Cypripedium Charlesworthii virginale, which may possibly throw further light on a question discussed at page 296, namely, Do Paphiopedilum Charlesworthii and P. Spicerianum grow anywhere intermixed? The flower exhibited had a white dorsal sepal, with a few light purple spots along the median line; the shape was also less concave, and the staminode seemed larger and not of the same pure porcelain white; which characters suggested a possible hybrid origin. The two species in question were not present, and we hope the opportunity will yet occur to make a careful comparison of the three. The matter should be cleared up.

R. A. ROLFE.

The above was squeezed out of our last number, and now the following very interesting note comes to hand:—

Two or three years ago we got home some imported Cyp. Charlesworthii, and among them have appeared two plants of Cyp. Spicerianum, but there are some differences from the usual Spicerianums. The leaves are narrower, and very dark green, the flowers fine, and the sepals much more crimped and crinkled, and rather more coloured. Both my plants bear two flowers on each stalk, and one has six flowers, though quite a small plant.

JANET ROSS.

Poggio Gherardo, Florence,
November 8th, 1902.

This is quite confirmatory of the idea that these two species do somewhere grow together, and owing to the close resemblance in their vegetative organs are not distinguished until they flower. In the first case there was a little doubt, because the history of the importation before being sold was not known, but in the second they appear to have been imported direct. Further evidence on this interesting question will be acceptable.

CYMBIDIUM × MANTINII.

On October 17th last the Manchester Orchid Society gave an Award of Merit to a pretty hybrid Cymbidium, called C. × Holmesii, which had been raised by Mr. W. Holmes, of Timperley, from C. Mastersii ♀ and C. giganteum ♂, but which, as pointed out at page 343, must rank as a variety of C. × Mantinii. The original C. × Mantinii was raised by M. G. Mantin, Olivet, France, from the reverse cross, and was exhibited at Paris on February 24th, 1898. In the following year a plant from the same

Fig. 37. Cymbidium × Mantinii.

parentage was exhibited at the International Exhibition at St. Petersburg, also by M. Mantin, as C. × Cæsaris Nicolai II, which, of course, becomes a synonym of the earlier name. The annexed figure is reproduced from a photograph kindly sent by Mr. Holmes, who remarks that the seed was sown eight years ago. As will be seen from the figure, the plant has retained much of the general character of C. Mastersii, but the influence of C. giganteum is very apparent in the details and markings of the lip.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Drill Hall, Buckingham Gate, Westminster, on November 4th, when there was an extremely fine display of Orchids.

J. Bradshaw, Esq., The Grange, Southgate (gr. Mr. Whitelegge), was awarded a Silver Flora Medal for a fine group, containing many fine varieties of Cattleya labiata, both white and coloured, including C. l. Amesiana, having a white flower with the lip lilac-pink in colour, which gained an Award of Merit; good forms of C. Dowiana aurea, Dendrobium × splendidissimum grandiflorum, Oncidium varicosum, O. Forbesii, a fine form of Lælio-cattleya × bletchleyensis, and others.

C. H. Feiling, Esq., Southgate House, Southgate (gr. Mr. Stocking), received a Silver Flora Medal for an excellent group, containing many fine varieties of Cypripedium insigne, C. × Memoria Moensii, C. × nitens, C. Stonei, C. Spicerianum, C. × Arthurianum, C. × Leeanum, C. Charlesworthii, and the fine C. × Harrisio-villosum.

Captain G. L. Holford, Westonbirt, Tetbury (gr. Mr. Alexander), staged a fine group of specimen plants, which gained a Silver Banksian Medal. It included two fine plants of Vanda Kimballiana, the largest bearing fourteen spikes and an aggregate of 145 flowers; V. Sanderiana, Lælia pumila præstans, with nine flowers; Cattleya × Ariel, a fine form of C. labiata, the pure white Dendrobium Phalænopsis hololeucum, and a very fine D. formosum giganteum, bearing ten spikes, with sixty very large flowers, which received a Cultural Commendation.

Sir F. Wigan, Clare Lawn, East Sheen (gr. Mr. Young), received a Silver Banksian Medal for a fine group, including Saccolabium calceolare, Odontoglossum × spectabile, Cattleya superba, C. labiata alba, with three flowers; C. l. Cooksonæ, C. × Mantinii nobilior, Lælio-cattleya × Frederick Boyle, Lælia pumila "Pearl," a pretty blush-white form with the lip pink in front, Cymbidium Tracyanum, a good form of Zygonisia × Rolfeana, two fine pans of Pleione Wallichiana, Cypripedium insigne Harefield Hall variety, C. i. Sanderæ, C. × Niobe, C. bellatulum album, C. × Arthurianum, and others.

The Hon. W. Rothschild, M.P., Tring Park (gr. Mr. Hill), was awarded a Silver Banksian Medal for a fine group of rare and interesting Orchids, containing Masdevallia angulata, M. abbreviata, M. muscosa, M. infracta, M. hieroglyphica, M. corniculata, M. × Doris, M. × Hincksiana, M. × Acis, Stenoglottis longifolia, and its variety alba, Sarcanthus teretifolius, Scaphosepalum gibberosum, Restrepia elegans, two plants of the beautiful Phalænopsis Lowii, the curious Bulbophyllum grandiflorum, B. Careyanum,

and its lilac-coloured variety, and the very handsome Cirrhopetalum Rothschildianum.

J. G. Fowler, Esq., Glebelands, S. Woodford, Essex (gr. Mr. Davis), received a Silver Banksian Medal for a good group, including many fine varieties of Cattleya labiata, one large specimen bearing thirty-six flowers; two well-flowered Dendrobium × aureum, Cypripedium insigne Laura Kimball, C. × Troilus, C. × Captain Holford (hirsutissimum × superbiens), having a very large and finely-spotted flower, and Lælio-cattleya × Decia.

J. Colman, Esq., Gatton Park, Reigate (gr. Mr. Bound), secured a Silver Banksian Medal with a good group, containing some fine forms of Cattleya labiata, C. Bowringiana, the pretty C. × suavior (intermedia × Mendelii), a splendid plant of Trichosma suavis covered with flower spikes; Dendrobium Phalænopsis, and many good Cypripediums, including C. insigne Sanderæ and C. i. Youngianum.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), showed Cypripedium insigne Sanderæ, a Zygocolax cross, and a fine Lælio-cattleya × Statteriana. An Award of Merit was given to Cattleya × Mrs. Pitt (Harrisoniana × Dowiana aurea), having flowers rose-pink in colour, of good substance, and the undulate lip with a rich orange disc.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), exhibited good forms of Cypripedium niveum and C. insigne, also the fine Oncidium × Mantinii superbum, which gained an Award of Merit.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed the handsome Odontoglossum crispum Poultoni, having the flowers white, heavily blotched with rose-purple.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), sent a yellow variety of Cypripedium insigne, called "Miss Corbett."

Sir J. Miller, Bart., Manderston, Duns (gr. Mr. Hamilton), exhibited a fine spike of Lælio-cattleya × Hamiltoni (C. bicolor × L. Dayana), having handsome dark-rose flowers with an elongated purple lip.

Messrs. J. Veitch & Sons, Chelsea, staged a fine group, for which a Silver Flora Medal was awarded. It contained Lælio-cattleya × Dominiana langleyensis, L.-c. × Gottoiana, L.-c. × Bryan, L.-c. × Decia, L.-c. × Euterpe, L.-c. × Eva, Cattleya × Ella, C. × Portia, C. × Minerva, C. × Mrs. J. W. Whiteley, Cypripedium insigne and its variety Chantini, C. × œnanthum superbum, C. × Arthurianum, C. × A. pulchellum, C. × Baron Schröder (× œnanthum superbum × Fairrieanum) and C. × Thalia (insigne Chantini × Baron Schröder) which received an Award of Merit. It is a very handsome hybrid, having an orbicular white dorsal sepal, lined and spotted with dark purple, and the petals and lip yellow marked with purple-brown.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Banksian

Medal for a fine group, including Cypripedium × Zenobia (callosum × Ashburtoniæ), C. × Coronis (× Leeanum giganteum × Lynchianum), and other fine hybrid Cypripedes, Zygocolax × Amesianus, Cymbidium Tracyanum, Habenaria Susannæ, Dendrobium thyrsiflorum, Masdevallia nidifica, and others. Awards of Merit were granted to Cypripedium × Evelyn Ames superbum (× Leeanum giganteum × Calypso Oakwood var.), and C. × Transvaal superbum (Chamberlainianum × Rothschildianum), two beautiful forms fairly intermediate between their parents, and a Botanical Certificate to Cynorchis purpurascens.

Messrs. H. Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, consisting chiefly of varieties of Cattleya labiata, including C. l. glauca, tinged with lavender-blue, and C. l. var. R. I. Measures, with pale pink markings on the lip, together with Cypripedium insigne Sanderæ, C. × gigas Corndeani, Bulbophyllum Careyanum, and others.

An Award of Merit was granted to Cattleya labiata Amesiana, having the flowers white, with the front of the lip lilac-pink.

Messrs. Charlesworth & Co., Heaton, Bradford, gained a Silver Banksian Medal for a group of fine hybrids, including Lælio-cattleya × Ingrami, L. c. × luminosa, Cattleya × Portia, C. × Iris, C. × Mrs. J. W. Whiteley, C. × Clarkei, Cypripedium callosum Sanderæ, C. insigne Sanderæ, C. × Arthurianum, and Sophrocattleya × Nydia.

Mr. J. Cypher, Cheltenham, showed a small group, containing Cypripedium × Memoria Moensii, C. × Leonæ, C. × Charlesianum, C. insigne aureum, C. i. Harefield Hall variety, C. i. Sanderæ, and others.

Mr. H. A. Tracy, Twickenham, showed Cattleya labiata cœrulea, having the flower tinted with blue all over, with the lip darker in colour.

M. Otto Froebel, Zurich, sent a fine spike of Vanda Sanderiana Froebeliæ, with very round, richly coloured flowers.

At the Scientific Committee meeting on the same date, Captain C. C. Hurst, Burbage, Hinckley, sent a flower of Paphiopedilum × Canhami (superbiens × villosum) showing a partial separation of the parental characters. An accompanying note pointed out that the plant had always previously produced normal flowers, but the one exhibited showed the following curious characters. One side of the lip was normal, being evidently a fair blend between the parent species, but the other side was divided into three distinct areas, (1) a narrow band of rich brown-purple, as in the parent P. superbiens; (2) a broad band of greenish yellow as in the parent P. villosum; the remainder (3) being a normal blend between the parent species. Capt. Hurst added:—"We have here evidently a partial separation of the mixed 'blood' of the parent species, the result being a

mosaic rather than a blend. It is interesting to note that the hairs within the lip are sharply separated, as is the colour, and there is also a slight tendency to separation in the colour of the dorsal sepal and the petals. Whether this partial 'sport' will prove permanent remains to be seen, though it is not very likely. We really know very little about the manner in which the cells of hybrids are determined and formed, but this particular case suggests that when the cells were being formed in areas 1 and 2, the parental determinants, instead of working together to form a blend, somehow separated, the P. superbiens determinants alone forming No. 1 area, and the P. villosum determinants forming the other, No. 2. Similar 'sports' have been recorded in the allied hybrid P. × Harrisianum (P. barbatum × P. villosum), for the history of which see Cypripedium × Dauthieri Rossianum, Rchb. f. in *Gard. Chron.*, 1888, i. p. 425; C. × D. marmoratum, *Rev. Hort.* Belge, 1889, p. 249, with plate; C. × Dauthieri dimidiate, *Gard. Chron.*, 1895, i. p. 335, fig. 45. Conf. also *Orch. Rev.*, 1894, pp. 20, 147."

AT the meeting held on November 18th there was again an extremely fine display of Orchids.

Captain G. L. Holford, C.I.E., Westonbirt, Tetbury (gr. Mr. Alexander), was awarded a large Gold Medal for a magnificent group, tastefully arranged with Bambusa gracilis, containing many examples of Oncidium varicosum, O. crispum, O. tigrinum, various good forms of Cattleya labiata, Cymbidium Tracyanum, with three fine spikes, some fine Vanda cœrulea, and a very large number of well-grown Cypripediums, bearing in all over 500 flowers, including a specimen of C. insigne Harefield Hall variety with four flowers; the allied C. i. Holfordianum, C. i. aureum, C. i. Dorothy, C. i. Standard, C. i. Westonbirt var., C. i. Sanderæ, C. i. Sanderianum, C. i. citrinum, C. i. Balliæ, C. i. Luciani, C. i. Dormanii, C. i. Youngianum, C. i. punctato-violaceum, with eleven flowers; C × Leeanum magnificum, C. × L. superbum, C. × L. Burford variety, C. × L. Westonbirt variety, C. × L. Albertianum, C. × Niobe magnificum, C. × Lawrebel, C. × Maudiæ magnificum, C. × Mons. de Curte, C. × Euryades, C. × Io grande, C. × Arthurianum pulchellum, C. × Cyris, and C. × Acteus. A Cultural Commendation was given to a fine plant of Cypripedium × Leeanum giganteum, bearing fourteen flowers, while a similar award was made to a magnificent plant of Cattleya Bowringiana, with ten spikes, bearing 198 flowers, the largest spike having twenty-six.

N. C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. H. J. Chapman), received a Silver Banksian Medal for a good group, containing some fine examples of Cypripedium insigne Sanderæ, C. i. Harefield Hall

var., C. × Norma, C. × Chapmanii, C. × Olivia, C. × Leeanum Clinkaberryanum, C. × Morganiæ Oakwood var., with three fine spikes; the handsome C. × Youngianum superbum, having a large flower, white, tinged with rose-purple, and spotted on the petals; Cattleya labiata oakwoodiensis, having the lip claret-crimson throughout, without any yellow disc, and Calanthe × Kenneth. An Award of Merit was given to Calanthe × triumphans, having nearly white sepals, and the rest of the flower ruby red tinged with rose.

The Hon. W. Rothschild, Tring Park, Tring (gr. Mr. Hill), received a Botanical Certificate for the remarkable New Guinean Bulbophyllum Ericssoni, having long caudate-acuminate sepals and petals, the former being much spotted.

The Rt. Hon. J. Chamberlain, M.P., Highbury, Birmingham (gr. Mr. Mackay), sent flowers of Lælio-cattleya × Mariæ (L. Digbyana × C. Warneri), having flowers white, tinged with rose, and with a purple spot on the lip.

W. P. Burkinshaw, Esq., Hessle, Hull (gr. Mr. Barker), showed Cypripedium × Prospero, C. × Goweri magnificum, C. insigne Hessle var., and C. i. Harefield Hall var.

J. G. Fowler, Esq., Glebelands, S. Woodford, Essex (gr. Mr. Davis), exhibited the remarkable peloriate Dendrobium Wardianum Fowleri, in which the lower sepals resemble the lip in colour and markings.

H. Gaskell, Esq., Woolton Wood, Liverpool (gr. Mr. Corbett), showed two hybrid Cypripediums.

Dr. Misken, Slade House, Kennington Road, exhibited a form of Cattleya Hardyana.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), showed a fine example of Odontoglossum Rolfeæ, together with O. × Harryano-crispum giganteum, having a large cream-white flower, tinged with rose and blotched with purple.

W. E. Wallace, Esq., Eaton Bray, showed a variety of Cypripedium insigne.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Gilbert), exhibited four forms of Cypripedium × Leeanum, the fine yellow C. insigne citrinum, Vanda cœrulea, and a plant called Lælia × Gilberti, a supposed natural hybrid from L. tenebrosa, having a flower light rose in colour, with a purple-rose front to the lip, which may be a form of Lælio-cattleya × Gottoiana.

H. Whateley, Esq., Kenilworth, showed a richly coloured variety of Dendrobium Phalænopsis.

Messrs. J. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for a fine group of handsome hybrids, including Lælio-cattleya × Lady

Rothschild, L.-c. × Pallas, L.-c. × C. G. Rœbling, L.-c. × Tiresias, L.-c. × bletchleyensis, L.-c. × Haroldiana superba, Cattleya × Mantinii, Lælia × Mrs. Grattrix, Cypripedium × Thalia, some plants of Cypripedium insigne Sanderæ bearing in all thirteen flowers, and other good things. A First-class Certificate was given to Lælio-cattleya × Thorntoni grandiflora (L. Digbyana × C. Gaskelliana), a very large form with bright rose-lilac sepals and petals, and the large and deeply-fringed lip dark lilac-rose, with a greenish-yellow disc. An Award of Merit was given to L.-c. × Statteriana superba (C. labiata × L. Perrinii) having a very large flower, with the sepals and petals bright rose in colour, and the front lobe of the lip bright red-purple.

Mr. J. Cypher, Cheltenham, were awarded a Silver-gilt Flora Medal for a splendid group, mainly of Cypripediums, including Cypripedium insigne Sanderæ, C. i. Sanderianum, C. i. Harefield Hall var., C. i. punctato-violaceum, the handsome C. i. ornatum, C. × Fascinator, C. × Niobe, C. × Arthurianum, C. × nitens, varieties of C. × Leeanum, including C. × L. virginale, having the major part of the dorsal sepal pure white in colour ; three plants of Dendrobium × Ethel, Masdevallia macrura, M. racemosa, M. × Hincksiana, M. ×. Heathii, some Sophronitis grandiflora, and others.

Messrs. Sander & Sons, St. Albans, were awarded a Silver Banksian Medal for an effective group, including Cypripedium × Transvaal superbum, C. × nanum (Leeanum giganteum × Lathamianum), C. × Niobe-Leeanum C. × Massaianum superbum, C. × Leeanum var. James Hamilton, a fine dark flower, with white dorsal sepal ; Lælio-cattleya × Decia, L.-c. × bletchleyensis, L.-c. × Bowringiano-Clive, L.-c. × Helena, Odontoglossum × tripudio-crispum, having a flower cream white, blotched with brown, Cymbidium Tracyanum, and others. An Award of Merit was given to Lælio-cattleya × Clive var. Sanderæ, a very handsome flower with the sepals and petals white tinged with pink and the front of the lip rosy crimson.

Messrs. Hugh Low & Co. showed a flower of Cattleya labiata Amesiana, Cypripedium insigne Sanderæ, C. i. Harefield Hall variety, and C. × Leeanum.

M. Ch. Maron, Brunoy, France, received an Award of Merit for Cattleya × Fabia Vigeriana (C. Dowiana aurea × C. labiata flammea).

Mr. H. A. Tracy, Twickenham, showed a good variety of Cypripedium insigne called Tracyæ.

Manchester and North of England Orchid.

A MEETING was held at the Coal Exchange, Manchester, on November 6th, when there was a very fine display of Orchids, including several

excellent groups, Certificates and Medals being granted as follows:—

S. Gratrix, Esq., Whalley Range (gr. Mr. G. Cypher), staged a remarkable group of Cypripediums, to which a Silver-gilt Medal was awarded. It contained numerous fine varieties of C. insigne, among which twenty-seven yellow forms were conspicuous, and the fine Harefield Hall variety. C. × Minos var. Youngii was also conspicuous, and Awards of Merit were also given to C. insigne Bohnhofianum and C. × Corona.

W. Duckworth, Esq., Flixton (gr. Mr. Tindall), also gained a Silver-gilt Flora Medal for a handsome group. In the centre were about a dozen good Cattleya Dowiana aurea, with some splendidly grown Oncidiums behind, as O. Marshallianum, O. crispum, O. Forbesii and O. prætextum. There were also some good Odontoglossum cirrhosum, the chaste Lælia Perrinii alba, and other choice things, the whole being very effectively arranged. Awards of Merit were given to Oncidium × Mantinii and Cattleya aurea Distinction.

O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), staged a group of well-grown Cypripediums, to which a Silver Medal was given. Prominent among them were several plants of C. insigne Sanderæ, a good C. i. Harefield Hall variety, and three plants of C. × Arthurianum in five-inch pots, bearing five flowers each. All the plants were well-flowered, and a First-class Certificate was given to C. × nitens Wrigleyanum in fine condition.

W. Thompson, Esq., Stone (gr. Mr. Stevens), staged a small choice group, which gained a Bronze Medal. Prominent in it were Cattleya × Mantinii and a light form of Odontoglossum × crispo-Harryanum; also Lælio-cattleya × Statteriana, which gained an Award of Merit. A Cultural Certificate and Bronze Medal was also given to three fine plants of Epidendrum vitellinum var. autumnale, bearing six fine inflorescences each.

T. Statter, Esq., Whitefield (gr. Mr. Johnson), received an Award of Merit for Lælio-cattleya × Ingramii superba, a large and richly coloured form.

R. Tunstill, Esq., Burnley (gr. Mr. Balmforth), also received an Award of Merit for Cattleya labiata reedleyense, a pretty variety having white sepals and petals and a pale rose-coloured lip.

Mr. J. Cypher, Cheltenham, received a Silver Medal for a very effective group, containing some good varieties of Cattleya labiata and Cypripedium insigne, together with some fine cut spikes of Dendrobium Phalænopsis.

Messrs. Hugh Low & Co., Enfield, received a First-class Certificate for the beautiful Cattleya labiata Amesiana, which is noted on another page.

Mr. W. Owen, Hartford, Cheshire, staged a good group of Cypripedium insigne, for which a Vote of Thanks was given.

CATTLEYA × IRIS VAR. OCULATA.

We have received from Captain C. C. Hurst, F.L.S., Burbage, Hinckley, a flower and photograph of the handsome Cattleya × Iris var. oculata (bicolor ♀ × Dowiana aurea ♂), to which a First-class Certificate was given by the Manchester Orchid Society in November 1901. The photograph, here reproduced, was taken this year, but from the type plant, and Captain Hurst remarks that the colour is darker than last year. When the flowers first open the sepals and petals are of a shade of pale buff, reminding

FIG. 38. CATTLEYA × IRIS VAR. OCULATA.

one somewhat of C. Dowiana aurea, but they soon change to a bright rosy mauve. The front lobe of the lip is rich purple-crimson, and there are two yellow eyes in the throat, by which it is distinguished from the typical form, and in reference to which the name is given. The plant was purchased from Messrs. Charlesworth & Co. In the small side lobes of the lip, and the well-expanded flower, it shows its descent from C. bicolor, but in most other respects the flower is greatly modified. It is certainly a very beautiful form.

CALENDAR OF OPERATIONS FOR DECEMBER.

By JOHN MACKAY, The Gardens, Highbury, Birmingham.

THE temperatures in the various departments should now be as follow :—

COOL HOUSE.—Day, 50° to 60° ; night, 45° to 50°.

INTERMEDIATE HOUSE.—Day, 55° to 65° ; night, 50° to 55°.

EAST INDIAN HOUSE.—Day, 60° to 70° ; night, 55° to 60°.

Ventilation should be admitted as freely on all occasions as the outside conditions permit, particularly in the Cool departments. Watering need not be carried out so regularly as heretofore, and in all cases it should be done sparingly, to prevent plants from being in too moist a condition should dull foggy weather be prevalent. Damping down will only be required when the floors, stages, &c., appear dry, and must not be done heavily ; of course, the greater the amount of fire heat necessary the greater also will be the amount of moisture required for evaporating purposes. The plants themselves also will require more attention with regard to watering, as the materials will dry much more quickly. Hitherto fogs have not been very prevalent, but we may now expect a visitation at any time, especially near large manufacturing towns where smoke and noxious fumes are prevalent during the colder months. Whatever the treatment given during one of these visitations, one cannot wholly avoid the loss of bloom and, in many cases, buds and foliage as well. All ventilators should be kept closed and the house rendered as airtight as possible ; the atmosphere and the plants should also be kept on the dry side.

The Dendrobiums should now be quite matured and hardened. Many of the early flowering species and hybrids, such as D. aureum, D. moniliforme, D. × Cassiope, D. × endocharis, and D. × burfordiense will have their flower buds well advanced. Where desirable to keep up a succession of bloom, those in a forward stage may now be placed in slightly warmer quarters. The plants should be looked over occasionally, selecting the more forward ones, thus ensuring a continuous display for several weeks. Do not place them at once into a high temperature, for often growth is produced instead of flowers at this stage, besides the risk incurred of ruining the plants as well, which would be most unsatisfactory. A position in the Intermediate house will suit them admirably for the present. The majority of the plants should, however, be kept back well into the new year, when better flowers and healthier plants will result.

The winter-flowering Cattleyas are a welcome addition where they can be relied on, for bloom of any description is acceptable during winter, and add an agreeable change to the somewhat monotonous appearance of the Orchid house at this dull season. The premier position must be given to

C. Trianæ, for without doubt it is the most perfect and exquisite of Cattleya blooms. The flowers of the early flowering varieties are now advancing, and a slight increase in the supply of water should be given until the flowers have fully expanded, when the former course of resting should be followed till growth commences at a later period. A great many imported plants now produce bloom of very inferior types, and are really not worth cultivating, so that where good, choice and valuable forms are grown they should not be allowed to bloom annually. Where this cannot be avoided, however, they should be cut soon after development, so that the vitality of the plants may be preserved as much as possible. They should now occupy a light position near the glass. C. maxima is now becoming somewhat rare, or is much less plentiful than formerly; it is a very pretty kind and blooms very freely when grown successfully. Here it occupies a light position on a shelf in the Cattleya house, a position which seems to suit it, and is given a decided rest after flowering, always avoiding excessive shrivelling with severe drought. C. Percivaliana is not one of the largest flowering species, nevertheless some of its varieties are very beautiful. It grows very freely, but does not always flower well, even when the sheaths appear healthy. This is doubtless due to lack of necessary light at this period. Water should be given sparingly throughout the flowering process, otherwise similar treatment to that advised for C. Trianæ may be given.

In the warmest house the Phalænopsis will be pushing up flower spikes, and water must be given with extreme care. Plants that have had their spikes removed, such as P. Aphrodite and P. amabilis, will require but little moisture; merely a slight wetting of the surface compost and roots about the basket with a syringe will be amply sufficient. The freedom with which these plants flower, and the length of time the flowers last, is often the cause of failure to cultivate them satisfactorily for any great length of time; it is therefore advisable to remove the flower scapes as soon as developed, unless, of course, the plants are in a vigorous condition. The advantage of this will be an increase of vigour the following season.

PLEIONES.—Plants of P. lagenaria, P. præcox, P. Wallichiana, P. Hookeriana, and P. Reichenbachiana as they pass out of flower should be potted immediately, because root action so soon commences that if this operation is too long delayed damage to the roots will result. Select moderately deep pans, giving sufficient drainage, and a suitable compost should consist of two parts peat, one of fibrous loam, one of sphagnum moss, with an addition of dry cow-dung, some finely broken crocks and silver sand to keep the material porous. Place about two inches of this material in the pan, slightly raising it towards the centre, shake the bulbs free from the old compost, and place a little of the new compost round

their base to keep them firm, arranging them so that space is allowed for development of the new pseudobulbs without overcrowding. When finished give them a position near the glass in a light part of the Cool house. No water should be required after repotting for at least four or five weeks, at the end of which time they may be dipped to the rims, taking care to prevent the material becoming moved out of position. Pleiones should on no account be watered too frequently until the foliage is pretty far advanced and root action more energetic.

Cœlogyne cristata has now completed the new pseudobulbs, and the plants should be given a light position in the Intermediate house, giving very little moisture until the flowers begin to develop, when a slight increase at the roots will become necessary.

ANGULOAS.—Growth with these is also complete, and a long cool rest may safely be given until they show signs of activity in the spring. Our plants are rested at the warmest end of the Cool house, where they keep in splendid condition without the least water being afforded.

Lycaste Skinneri and L. × Smeeana whilst in flower should not be kept too dry at the roots, and they require all the light available to develop their flowers satisfactorily. Oncidium cheirophorum is a charming little species and makes a pretty display at this time, the flowers lasting a long time in perfection. After flowering, a short dry rest is essential until new growth makes its appearance. O. tigrinum, as it passes out of bloom, should be given all the light available, with very little water supplied for the next few months. O. concolor does not bloom till the spring; its pseudobulbs are fast approaching completion, and where this is the case should now be given a rest, giving only water sufficient to keep the pseudobulbs plump.

In the Cool house a good many spikes are showing, and a sharp look-out for slugs will now be necessary. Continue to lay traps of bran, &c., and secure each spike with a little cotton wool round the base. See that each plant on the stages receives an equal share of light, by even and regular staging. Continue to cleanse the houses and plants wherever necessary. A good supply of sphagnum and peat, as well as leaf-mould, should be laid in this month ready for future use.

ORCHIDS IN SEASON.

A VERY fine form of Cattleya Bowringiana is sent from the collection of Mrs. Grogan, Slaney Park, Baltinglass, Co. Wicklow (gr. Mr. F. W. Oliver). The inflorescence bears ten very fine and richly coloured flowers, the petals being nearly and in one case quite 1½ inches broad, while there is a zone of nearly blackish purple in front of the white throat of the lip. A fine form

of Paphiopedilum Charlesworthii is also sent, in which the dorsal sepal measures $2\frac{5}{8}$ inches across. The shape is excellent, and the colour must have been equally good, for it is said to have been out nearly six weeks, and to have lost much of its colour. Both these plants should be taken care of. Mr. J. H. Grogan writes: "I am much interested in the leaf-mould correspondence, and am trying some little experiments; so far with good results."

Flowers of the splendid Paphiopedilum × I'Ansoni magnificum (P. × Morganiæ × Rothschildianum) are sent by Messrs. Hugh Low & Co., of Bush Hill Park. The inflorescence is very strong, and produced three flowers of great substance. The dorsal sepal is two inches broad, cream white, with several red-purple stripes at the sides, which become nearly obsolete towards the centre and apex. The petals are five inches long by $\frac{3}{4}$-inch broad, cream yellow tinged with greenish and handsomely blotched with dark brown. The lip is $2\frac{1}{2}$ inches long, and light brown in front, while the broadly obovate, very hairy staminode is light yellow. Messrs. Low remark that it is far superior to the other forms that have bloomed, and in their opinion eclipses C. Stonei platytænium. It is certainly a noble form.

Flowers of two pretty hybrid Paphiopedilums are sent from the collection of E. F. Clark, Esq., Chamounix, Teignmouth. They were purchased as small seedlings from the Selly Hill collection, in 1896. The first was recorded as barbatum biflorum × insigne punctato-violaceum, and the dorsal sepal is more flushed with purple and less spotted than in any form of O. × Ashburtonæ that we remember. The other is recorded as insigne Chantini × Curtisii, and seems to be correct, and thus may be considered as a form of P. × miniatum.

A fine flower of the handsome Cymbidium Tracyanum is sent from the collection of R. le Doux, Esq., Marlfield, West Derby, Liverpool, by Mr. Davenport, together with the pretty little Lælio-cattleya × Amelia, from a five-flowered spike; also another charming little hybrid from Lælia cinnabarina ♀ and Cattleya amethystoglossa ♂, with buff orange sepals and petals, and the broad front lobe of the lip purple; and a brilliantly coloured Paphiopedilum of which the parentage is unfortunately unknown. It is much allied to P. × œnanthum, but has more colour, as might be expected from a hybrid between the plant just mentioned and P. barbatum.

A fine flower of the natural hybrid Cattleya × Imperator is sent from the collection of R. Tunstill, Esq., Monkholme, Burnley, by Mr. Balmforth. It has retained the strongly three-lobed of C. granulosa, but the bright rose-purple colour and greater size show the influence of C. labiata, the other parent. It was purchased at Mr. Warburton's sale last October.

An inflorescence of the interesting and pretty *Zygonisia* × Rolfeana (Aganisia lepida × *Zygopetalum maxillare*) is sent from the collection of Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, by Mr. Young. It bears six flowers, and most resembles the *Zygopetalum* parent in shape and colour.

Flowers of two Cymbidiums which have just bloomed in the collection of Captain Law-Schofield, Rawtenstall, Manchester, are sent by Mr. Schill, and prove to be C. longifolium and C. elegans, the parents of the natural hybrid C. × Gammieanum noted at page 351.

Several fine Paphiopedilums are sent from the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell, including the charming yellow P. insigne Ernesti, a pretty light form of P. × Hitchinsiæ raised from the preceding crossed with the pollen of P. Charlesworthii, P. × Arthurianum, some fine spotted forms of P. insigne, P. i. radiatum, in which the spots are replaced by light brown lines, and two hybrids of somewhat doubtful parentage, whose identity may perhaps be ascertained when they flower again.

Lælio-cattleya × Statteriana magnifica is an extremely fine and richly coloured variety sent from the collection of Right Hon. J. Chamberlain, M.P., by Mr. Mackay, one of the best which we have yet seen.

NOTES.

THE last meeting of the year of the Royal Horticultural Society will be held at the Drill Hall, Buckingham Gate, Westminster, on December 9th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold a meeting at the Coal Exchange, Manchester, on December 11th. The Orchid Committee meets at 11.30 a.m., and the exhibits are open to inspection from 12.30 to 3 p.m.

A fine dark form of Dendrobium sanguinolentum is sent from the collection of Sir Trevor Lawrence, Bart., Burford, Dorking. It is a striking species, and not often met with in cultivation.

An inflorescence of the handsome Cattleya × Fabia var. Lansbergei (C. labiata flammea × C. Dowiana aurea) is sent by Messrs. Linden & Co., Moortebeek, Brussels. It most resembles the latter species in shape, and the former in colour, being of a bright rose-purple, with a large amount of orange yellow and some golden veining in the throat, in front of which is a very deep crimson area. It is figured at t. 725 of the *Lindenia*.

Flowers of the beautiful Cattleya labiata var. Amesiana, to which an Award of Merit was given by the R.H.S. on November 4th, are sent by R. G. Thwaites, Esq., of Streatham, and Messrs. Hugh Low & Co., of Bush Hill Park. The shape is excellent, and the sepals and petals white, with the beautifully crisped front lobe of the lip of a peculiar shade of lilac-pink. Messrs. Low's plant had a spike of four flowers, and when exhibited at the Manchester Orchid Society's Meeting on November 6th, it proved quite the centre of attraction, and was unanimously awarded a First-class Certificate. It is named in compliment to Mr. Oakes Ames, North Easton, U.S.A., and the colouring of the lip is almost identical with that of C. Trianæ Amesiana, for which Messrs. Hugh Low & Co. received an Award of Merit in March, 1899.

A fine and very richly coloured variety of Cattleya labiata, called Frau Louise Karthaus, is sent from the collection of C. F. Karthaus, Esq., of Berlin, through Messrs. Charlesworth & Co. It measures over seven inches across, and the sepals and petals are bright rose-purple, with the front lobe of the lip very dark purple-crimson. The shape is excellent, and it is one of the most richly coloured varieties that we have met with.

A flower of the handsome Oncidium × Mantinii superbum, to which an Award of Merit was given by the R.H.S., on November 4th, is sent from the collection of F. Wellesley, Esq., Westfield, Woking. It is a natural hybrid between O. Forbesii and O. Marshallianum, and fairly intermediate between them.

Oncidium tigrinum Crookii is a distinct and pretty variety sent by Messrs. Hugh Low & Co., Bush Hill Park, in which the markings on the sepals and petals consist of three or four light brown bands, and thus is somewhat intermediate between the type and Reichenbach's variety albens in which the dark markings had quite vanished, leaving the flower entirely yellow. The plant is now in the collection of T. M. Crook, Esq., Stanley Grange, Hoghton, near Preston.

TO OUR READERS.

We may remind our readers that the issue of the present number completes our first ten volumes, and those who have the series complete may find an interest in glancing back to the first number, and noting the progress made, and how far our original programme has been carried out. We intend to commence the new volume with some alterations which we believe will increase the utility of the work, and we invite any suggestions from our readers, and also their co-operation in making the work still more widely known.

ORCHID PORTRAITS.

BULBOPHYLLUM ERICSSONI.—*Gard. Chron.*, 1902, xxxii, pp. 383, 384, fig. 130.

CATASETUM QUADRIDENS, ROLFE.—*Bot. Mag.*, t. 7864.

CATTLEYA × MAGNEANA.—*Le Jardin*, 1902, p. 328, with tab.

CYMBIDIUM SIMONSIANUM, KING AND PANTL.—*Bot. Mag.*, t. 7863, Identical with C. Dayanum, Rchb. f. (See *O.R.* v. p. 356).

CYPRIPEDIUM CHARLESWORTHII.—*Journ. Hort.*, 1902, xlv, p. 469, with fig.

CYPRIPEDIUM × TRANSVAAL SUPERBUM.—*Journ. Hort.*, 1902, xlv, p. 445, with fig.; *Gard. Chron.*, 1902, xxxii, p. 361, fig. 123.

DENDROBIUM NOBILE (group at Shipley Hall, Derby).—*Gard. Mag.*, 1902, p. 744, with fig.

LÆLIO-CATTLEYA × BLETCHLEYENSIS FOWLER'S VAR.—*Journ. Hort.*, 1902, xlv, p. 489, with fig.

ODONTOGLOSSUM × CRISPO-HARRYANUM DELICATUM.—*Journ. Hort.*, 1902, xlv, p. 421, with fig.

ONCIDIUM × MANTINII SUPERBUM.—*Gard. Chron.*, 1902, xxxii, p. 351, fig 119.

CORRESPONDENCE.

(Correspondents not answered here may find replies to their queries on other pages, and in some cases, for various reasons, they may have to stand over for a future issue. In the case of hybrid seedlings sent for name, the parentage and history should always be briefly stated, for without these details we are not always able to deal with them satisfactorily.)

J. B. C. We do not recognise your Paphiopedilum insigne as a named variety, though the named varieties are almost endless. It is very pretty, the spots on the sepal being small, and almost confined to the lower half, while the ground colour is distinctly yellow.

J. H. The supposed hybrid from Lælia tenebrosa × Cattleya Bowringiana can hardly be correct; and the one from Lælio-cattleya × amanda × C. Dowiana aurea scarcely seems properly developed. It would be well to wait until they flower again.

J. R. The seedling from Paphiopedilum Charlesworthii and P. × Dauthieri Rossanum is good in colour, and very promising, but obviously undeveloped Next season it may show its true character.

T. T. Cattleya Bowringiana varies somewhat in colour, and this bluish-purple form has appeared several times before. It forms a pretty contrast with the ordinary form.

G. B. Oncidium carthaginense.

H. G. A. Rodriguezia decora.

Photographs received, with thanks. H. A., J. B.

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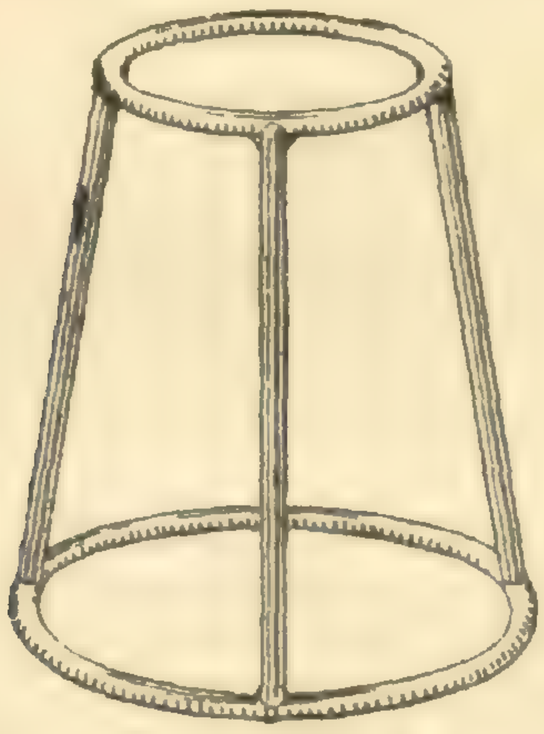

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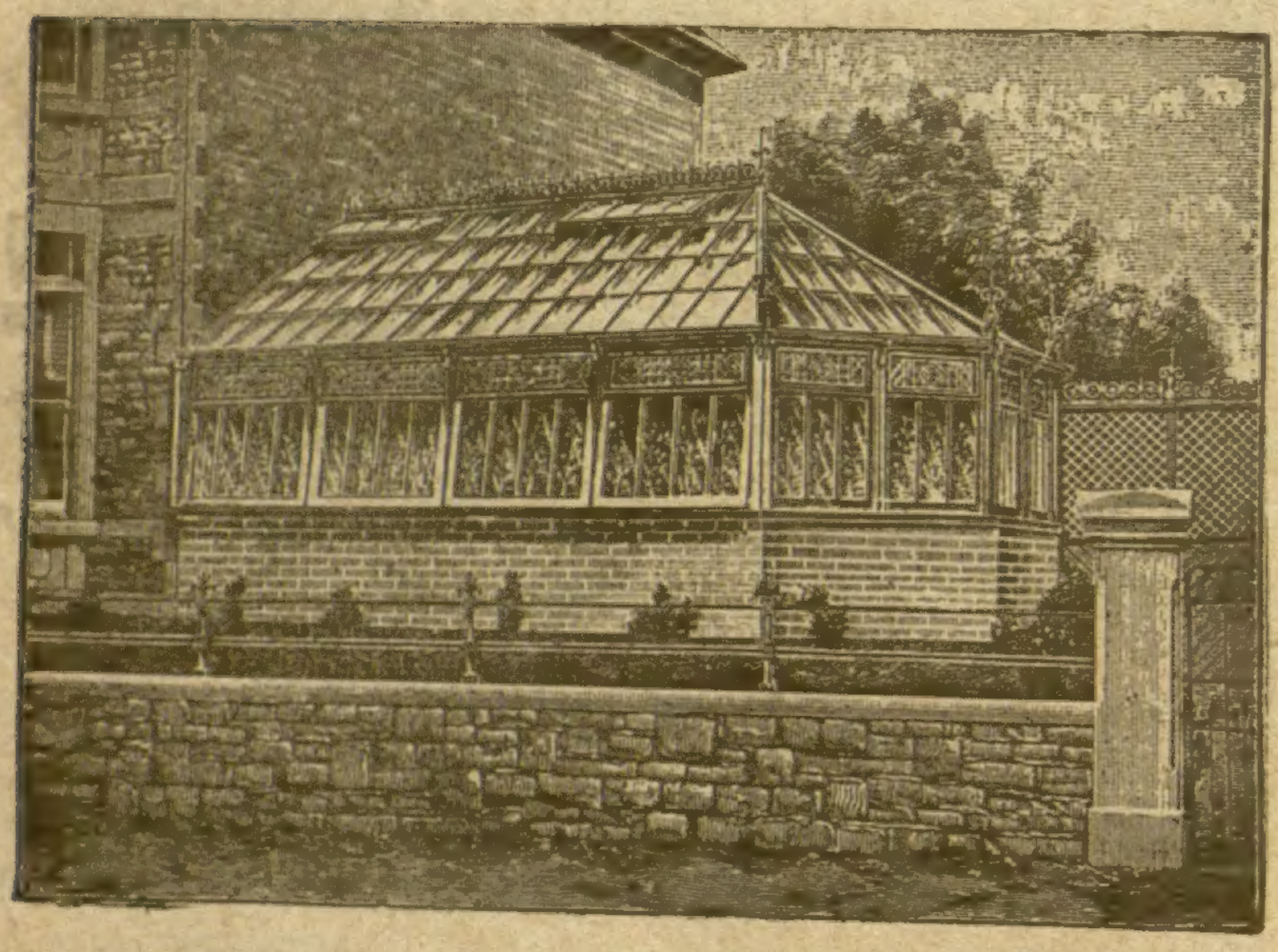

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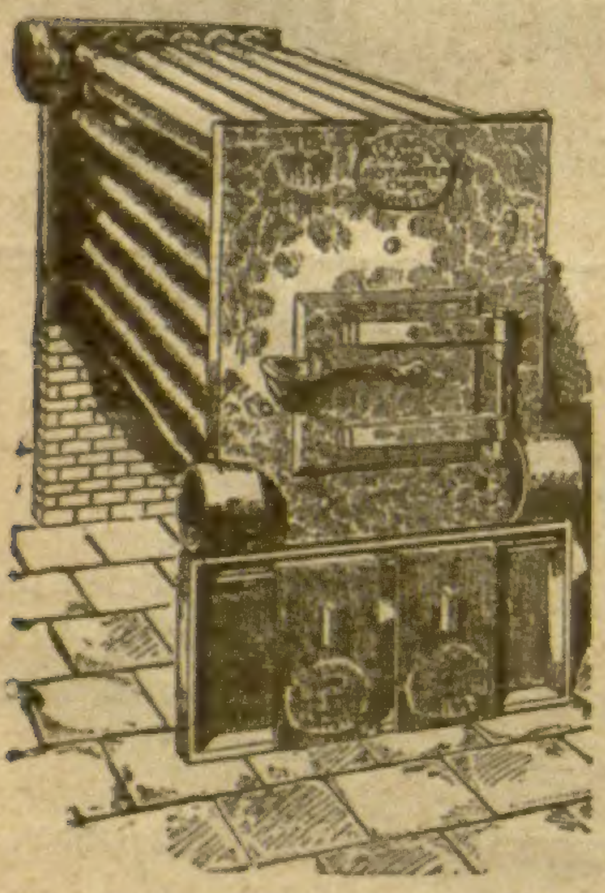

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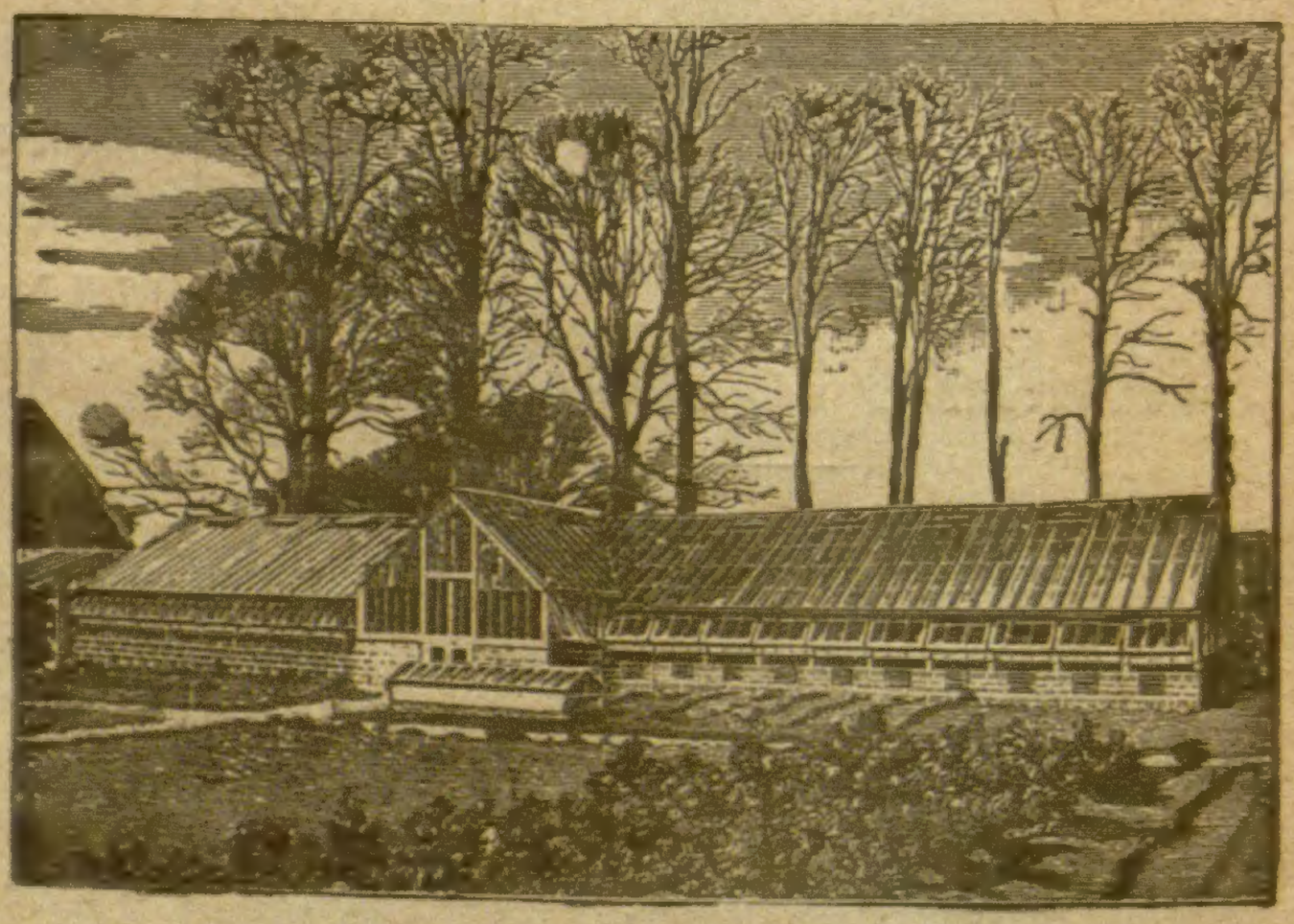

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